AIRLINE COMPUTER RESERVATION SYSTEMS

(100-74)

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION

OF THE

COMMITTEE ON
PUBLIC WORKS AND TRANSPORTATION
HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

SECOND SESSION

SEPTEMBER 14, 1988

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AIRLINE COMPUTER RESERVATION SYSTEMS

WEDNESDAY, SEPTEMBER 14, 1988

House of Representatives,
Subcommittee on Aviation,
Committee on Public Works and Transportation,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:19 a.m., in room 2154, Rayburn House Office Building, Hon. Norman Y. Mineta [chairman of the subcommittee] presiding.

Mr. Mineta. Before we begin, I would like to enter into the record the Summary of Subject Matter of today's hearing.

[Summary referred to follows:]

SUBCOMMITTEE ON AVIATION

HEARING ON COMPUTER RESERVATION SYSTEMS

10:00 A.M.

WEDNESDAY, SEPTEMBER 14, 1988

SUMMARY OF SUBJECT MATTER

The hearing will focus on the Department of Transportation's May 1988 report on airline computer reservation systems (CRSs) and on whether any action is needed to follow up on that report.

Virtually all travel agents now use CRSs in the sale of air transportation. CRSs are used to obtain information on available schedules and fares, and then to book reservations. There are five major CRS systems used by travel agents, all of which are owned by airlines and leased to the agents. American Airlines markets the SABRE system; United Airlines markets Apollo; the Texas Air Corporation markets System I; Trans World Airlines and Northwest Airlines market PARS; and Delta Airlines markets the DATAS II system.

United and American dominate the CRS industry. In 1986 their CRSs accounted for 75% of all revenues handled by automated travel agents.

The Aviation Subcommittee has long been concerned with domination of the CRS industry by United and American, and on whether this domination is permitting unfair competitive practices which are undermining competition between airlines. The Aviation Subcommittee first considered the CRS problem in hearings held in 1983. Following the hearings, the Committee Chairman and Ranking Minority Member wrote to the Civil Aeronautics Board and urged the Board to take regulatory action to deal with unfair competitive practices which were interfering with competition in the air transportation. In 1984 the CAB adopted regulations which:

(1) Prohibited "bias" in the listing of schedules on CRS screens. This prohibition prevented CRSs from continuing the practice of displaying the schedules of the carrier owning the CRS before listing the schedules of other carriers.

(2) Required CRS owners to charge all airlines the same "booking" fee for listing their schedules and issuing their tickets through the CRS. Prior to this prohibition CRS owners were charging carriers different fees, in some cases related to the extent to which a carrier competed with the CRS owner.

(3) Prohibited CRS owners from leasing CRSs to a travel agent for a term of more than five years. This rule was designed to furnish more opportunities for competition by other CRS systems.

(4) Prohibited CRS owners from requiring that a travel agent use the CRS system exclusively.

Despite the CAB's rules, the Subcommittee has continued to be concerned about whether United and American have monopoly powers and are engaging in unfair competitive practices. One area of concern has been booking fees. Following enactment of the CAB's rules, the CRS owners imposed new uniform booking fees for airlines participating in their systems. The new fees were substantially higher than the fees previously charged most airlines. The concern is that the new fees are substantially in excess of United and American's costs and are producing unreasonably high profits for United and American and unfairly increasing the cost of other airlines.

Another area of concern has been that despite the elimination of bias in the listing of schedules, American and United's ownership of CRS systems still gives them substantial marketing advantages over competing airlines. Travel agents appear to prefer to book on the airline owning their CRS. With United's and American's domination of the CRSs used by travel agents, this "halo effect" appears to produce substantial "incremental revenues" for American and United which makes it difficult for other carriers to compete with them.

Another area of concern has been the contractual provisions which make it difficult for competing CRS systems to displace the CRS used by a travel agent. Following adoption of the CAB's rules, the CRS owners modified their contracts with travel agents. The modifications included substantial increases in the amount of liquidated damages which an agent would be required to pay if the agent terminated the contract before it ended; clauses requiring a travel agent leasing a CRS to make "minimum use" of the CRS; and a frequent renewal of contracts which still had time to run. These changes tend to lock in a travel agent to the CRS system he or she is using and make it difficult for a competing CRS to replace an incumbent.

These concerns have led the Subcommittee to ask for a number of studies on CRS problems. In 1985, the Subcommittee leadership asked the General Accounting Office to study the questions of possible excessive booking fees and continued incremental revenues. GAO concluded that there were grounds for serious concerns over these anti-competitive problems and recommended that the issues be studied by the Department of

Transportation, which would have the ability to obtain access to more detailed information. (DOT took over CAB's regulatory responsibilities in 1985.)

The Subcommittee leadership and Senator Kassebaum agreed and asked the Department of Transportation to undertake a further study. DOT's study was completed in May 1988.

In July, Chairman Mineta wrote to the Department expressing his concern that although the DOT study made a number of disturbing findings about anticompetitive features of the CRS industry, the report stopped short of reaching conclusions about the ultimate issues involved (such as the effects of these anticompetitive practices on airline competition) and the report failed to discuss whether any - regulatory or legislative action was needed to deal with the problems discussed in the report. Chairman Mineta's letter also included a number of specific questions for the Department about the report and asked the Department to respond to these questions in writing one week before the hearing.

A copy of Chairman Mineta's letter and the questions submitted to the Department is attached. The DOT answers have not yet been received. Copies of the DOT answers and the DOT report will be available at the hearing and advance copies can be obtained from the Aviation Subcommittee staff (5-9161).

The witnesses at the hearing will represent the General Accounting Office, which has been studing CRS issues, and the Department of Transportation.

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Committee on Public Works and Transportation
One Hundredth Congress
U.S. House of Representatives
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Washington, DC 20515
TELEPHONE: AREA CODE 202, 225-4472

July 13, 1988

Honorable James Burnley IV
Secretary of Transportation
Washington, D.C. 20590

Dear Jim:

I am writing to discuss the Department of Transportation's recent "Study on Airline Computer Reservation Systems" (May 1988), and on further actions which are needed to follow up on that study.

In May 1986, Senator Kassebaum, Congressman Hammerschmidt and I asked the Department to undertake a study on the effects of certain practices in the computer reservation systems (CRS) industry on competition between airlines. DOT's report in May 1988 indicates that our concerns were well-founded. Some of the disturbing findings in the DOT report are as follows:

(1) Market Shares. The DOT study concludes that the CRS systems marketed by two airlines, United and American, continue to dominate the industry. The DOT study shows that in the year studied, 1986, American's and United's CRSs together accounted for 75.3% of all revenues handled by automated travel agents.

(2) Difficulties of New Competition. The DOT report concludes that there are important barriers to new entry in the CRS industry by other airlines, particularly "the substantial sunk costs that would will have to be incurred to develop a competitive CRS, the economies of scale and scope that the largest vendors appear to enjoy, and the time and expense it would take to acquire a critical mass of subscribers."

With respect to potential entrants which are not airlines, the DOT report concludes that "the fact that CRSs evolve from airline internal reservation systems and the benefits that airlines derive from the CRS make it unlikely that a non-airline will attempt to enter the CRS market in the future."

(3) The Booking Fees Charged by United and American to Other Airlines Exceed American's and United's Costs. United and American charge other airlines a fee of $1.85 for every booking made on United or American's CRS. The DOT report concludes that under DOT's best estimate, United and American's charges to other air carriers are "roughly twice (United and American's) average unit cost per passenger segment booked."

(4) Lack of Influence of Other Airlines Over Booking Fees. The report concluded that "participating airlines' ability to influence the level of booking fees charged by the vendors appears to be limited because non-CRS owning airlines have no mechanism to influence their passengers to patronize travel agents equipped with CRSs that charge lower booking fees, or to persuade travel agents to equip themselves with such systems."

(5) Transfer of Revenues From Other Carriers to United and American. In view of the fact that 75% of all CRS tickets (measured by revenues) are written on United and American's CRS, a significant portion of the $450-600 million a year these two carriers receive in booking fees represents a net transfer of industry revenues from other carriers to United and American.

The DOT report also concludes that CRS owners continue to receive incremental revenues, that is, excess revenues obtained because of the tendency of travel agents to book on the airline owning their CRS. Again, because American and United have such a large share of the CRS market they obtain substantially more incremental revenues than the other carriers owning CRSs.

The DOT report does not estimate the total net revenues which are being transferred to American and United each year as a result of excessive booking fees and incremental revenues. The data in the report suggest that these amounts may total more than a billion dollars a year.

(6) United's and American's CRSs Are Highly Profitable.
The DOT report found that United and American are receiving a 60-100% return on investment using conventional accounting methodology. If economic methods of measuring rate of return are used, United and American's rate of return may be even higher.

Although the DOT report is an excellent analysis of complex data and includes many useful findings of facts, it is regrettable that the report stops short of reaching conclusions on the ultimate issues involved. The report does not reach conclusions on how much revenue is being transferred to American and United from the rest of the industry; on what effects these revenue transfers have had and will have on airline competition; or whether the revenue transfers and other anti-competitive aspects of the CRS industry were an important cause of the wave of airline mergers, the disappearance of the new entrant carriers, and the lack of any recent new entry. Nor does the report reach any conclusions about whether various provisions in contracts between CRS owners and travel agents are unfair competitive practices which unreasonably restrain competition between CRS owners.

In addition, we are concerned that neither the DOT report nor subsequent statements by the Department give any indication as to whether the Department feels that any regulatory or legislative action is needed to deal with the problems disclosed in the report.

The Aviation Subcommittee is planning to hold hearings in September on the DOT report and on the need for further action by the government. To ensure that the hearings address issues of great concern to the Committee, we have prepared a series of written questions which are attached to this letter. We would like to receive your written answers to each of these questions one week before the hearing. The hearing would consider your written responses and we would, of course, welcome any additional comments you would care to make in written and oral testimony, submitted in accordance with the Committee's normal procedures.

Thank you for your cooperation.

Sincerely,

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

QUESTIONS FOR DEPARTMENT OF TRANSPORTATION

1. Please furnish the Committee with DOT's best estimate of the net revenue transfer to American Airlines and United Airlines from the rest of the industry based upon DOT's May 1988 CRS report.

   a) For the period prior to November 1984.

   b) For the period subsequent to November 1984 through December 31, 1987.

2. Do you believe that revenue transfers of this magnitude would have any effect on airline competition?

   -- on scheduling

   -- on fares

   -- on equipment decisions

   -- on decisions on cities and markets to be served

3. Given the magnitude of those revenue transfers, what role do you believe that CRS ownership played in the post-CAB sunset wave of airline mergers?

4. The early years of deregulation were characterized by many new competitors, some of which grew quite dramatically. In recent years, however, there has been little new entry, and most of the existing new entrants have ceased to exist. Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

5. It appears from the data in the DOT report (see especially Tables 4.2 and 4.12) that the dominance of the two largest CRS vendors is generating a revenue transfer from other airlines of $1-2 billion per year ($1 billion if the vendors' estimate of "halo" is correct, $2 billion if the Department's estimate of "halo" is correct). Is it the position of the Department that transfers of that order of magnitude have no adverse impact on airline competition? Why did the report fail to aggregrate the various calculations that it made into a single estimate of the revenue transfer? Why did it fail to appraise the significance of those transfers for airline competition and the public interest?

6. Various airlines, travel agent groups, and others have made in recent months suggestions to DOT with respect to regulatory actions which they believe should be taken to reduce the dominant vendors' market power. Would you please list for us without necessarily identifying the source, what specific suggestions were made for DOT consideration. Did your Department consider each of these proposals? May we have DOT's evaluation of the proposals made to it? Were there any other proposals internally developed which were considered? If so, what was DOT's evaluation of each of those?

7. If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal or proposals, if any, would you regard as most effective and appropriate for adoption by DOT?

8. What is your position on whether minimum use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

If you believe that it does have such an effect, do you think that DOT should take action to clarify that Section 255.6(b) of DOT's regulations precludes the use of minimum use clauses?

9. Has DOT addressed the question of what effect, if any, inhibition of conversion efforts resulting from restrictive contractual provisions has had on CRS competition or airline competition? If so, what conclusions have you reached?

On page 135 of the May 1988 CRS report, DOT suggests but does not resolve certain pertinent questions relative to whether the new restrictive subscriber contract clauses are unfair competitive practices and what the effect on air transportation competition might be if they were barred. For example, the Department states, "The question here is whether the benefits of these contracts (or particular provisions) are outweighed by a purpose or effect that unreasonably

restrains competition." Obviously that is the question; what is the answer? The Department has the statutory responsibility to prevent "unfair methods of competition in air transportation or the sale thereof" (Section 411 of the Federal Aviation Act). Having raised the appropriate questions about CRS contracts, does the Department take the position it has no obligation to provide the answers? If not, what is the Department's position on whether these contracts contain elements which unreasonably restrain competition?

10. In general, the DOT report contains a wealth of important information about CRSs and their impact on airline competition. Among the major points which emerge from the report are:

- The dominant CRS vendors have and exercise significant monopoly pricing power, reflected in the fact that they charge other airlines at least double what it costs to provide the service.
- The dominant CRS vendors enjoy extraordinarily high profits from their CRS operations (Internal Rates of Return estimated by DOT at 108.9% and 129.5% for Apollo and Sabre respectively), producing revenue transfers among airlines of $1-2 billion per year.

- Other airlines may be barred from making their own competitive responses (i.e. successfully marketing their own CRSs), and travel agents may be barred from freely choosing among CRSs, by a variety of agent-vendor contract clauses which may have an anti-competitive effect or purpose.

Obviously, these points raise major concerns about trends in the degree of competition among airlines, concerns which affect the interests of consumers, airlines, travel agents, and which ultimately threaten the viability of deregulation. Yet the Department, despite the wealth of information in its report, has chosen to draw no conclusions and has thus far chosen to take no action. Is that because the Department has concluded that no action is warranted; or does the Department have a plan of action and; if so, what is it?

11. In the last year, has DOT had any discussions with the Office of Management and Budget on rulemaking to deal with CRS problems? If so, what are OMB's views on the desirability of such rulemaking?

Mr. **Mineta**. The Aviation Subcommittee will please come to order.

This hearing has been called to consider the reluctance of the Department of Transportation to deal with the competitive problems which have been created by airline computer reservation systems known as CRSs.

The Aviation Subcommittee has long been concerned with the domination of the CRS industry by United and American Airlines, and whether this domination is permitting unfair competitive practices and undermining competition between airlines.

The Aviation Subcommittee first considered this CRS issue in hearings held in 1983. Following these hearings, the Subcommittee Chairman and the Ranking Minority Member wrote to the Civil Aeronautics Board and urged the Board to take regulatory action to deal with the problem.

In 1984, the Board adopted regulations which prohibited some of the more glaring anti-competitive practices.

After adoption of the CAB's regulations, American and United took a number of controversial actions which were not explicitly prohibited by the CAB's regulations. These included raising the booking fees charged to other airlines for participation in the "CRS system," and developing a number of new provisions for the contract between a CRS owner and a travel agent.

These contractual provisions, which include high liquidated damages and minimum use clauses, make it extremely difficult for any competing CRS system to displace American and United.

Over the past few years, a widespread concern has developed that the CAB's rules have not solved the problem of CRS monopoly power. In addition, many believe that United and American continued domination of the CRS industry continue to be an important factor in the decline of competition between the airlines.

Concerns about the CRS situation have been raised by Members of Congress on the Committees having jurisdiction over aviation and antitrust laws, by the General Accounting Office, and the Congressional Budget Office, by airlines other than American and United, by travel agents, and by a large number of economists and financial analysts, who have studied the aviation industry.

Now, these concerns are not limited to the theoretical. During the last few years, there has been a substantial decrease in the number of airlines in the industry. A large number of airlines which did not own CRSs have disappeared from the scene, either through bankruptcy or through merger with larger carriers which owned or had the potential for owning a CRS system.

There has been almost no new entry to replace the carriers which have disappeared. The monopolistic CRS system is frequently cited as a major cause for the decline of competition and as a factor which is likely to prevent significant new competitions from developing in the future.

With the impressive body of opinion which has concluded that CRSs are a major problem inhibiting competition between airlines, we would have expected the Department of Transportation, which took over the CAB's regulatory responsibilities, to have acted on its own initiative to consider what regulatory or legislative measures are needed to deal with the CRS problem.

Unfortunately, the Department's basic attitude seems to be "don't rock the boat." The Department appears to be unwilling to take any action on CRSs without substantial prodding and adverse publicity.

Since the Department of Transportation took jurisdiction over CRS issues in 1985, the Department has taken only three general regulatory actions on CRSs. The DOT has jawboned CRS owners to limit or eliminate biased secondary screens, contractual rollover clauses, and algorithms relying on elapsed time.

All of these limited actions came after strong expression of Congressional concern.

The first DOT move occurred after a Senate hearing focused attention on the problem, and the Senate and the House aviation leadership wrote to the Department of Transportation.

The second and third DOT actions were taken after the House or Senate Aviation Subcommittees had reported legislation requiring specific changes to deal with these two problems.

In 1986, it took a formal written request of Members of this Committee and Senator Kassebaum to get the Department to undertake a general study of CRS problems, a first step in dealing with the basic issues.

The Department of Transportation study was released in May of 1988. The study exhaustively analyzed data on the CRS industry, and reached the conclusions which in the view of many observers supported the concerns that have been raised about CRS monopoly power.

Some of the main conclusions reached by the DOT study were:

First, that American and United continued to dominate the CRS industry with their CRSs together accounting for approximately 75 percent of the revenues handled by automated travel agents;

Secondly, that there are substantial barriers to new entry into the CRS business;

Third, that the booking fees that United and American are charging other airlines for each ticket written on the CRS are approximately twice United and American's average cost for providing this service;

Fourth, that American and United CRS ownership continues to give them substantial incremental revenues, that is, excess revenues resulting from the tendency of travel agents to book on the airline owning their CRSs;

Fifth, the high booking fees and the incremental booking transfers produce revenues of hundreds of millions of dollars a year for both American and United;

And sixthly, as a result of these revenue transfers and other sources of CRS revenues, American and United CRSs are earning rates of return of 60 to 100 percent a year.

Now, unfortunately the DOT study stopped short of addressing the implications of these kinds of disturbing facts. The study did not determine the net amount of the revenue which was being transferred to United and American from the rest of the industry.

The DOT's report neither analyzed the effect which revenue transfers were having on airline competition, nor did DOT reach conclusions on whether the CRS problem was an important cause of the wave of airline mergers, the failure of new entrant carriers, and the continued absence of new entry into the industry.

The DOT study also failed to consider what impact CRSs were likely to have on airline competition in future years.

Finally, the study scrupulously avoided considering whether regulatory or legislative action of any kind was desirable in the future.

Now, given the disturbing nature of DOT's findings, I would have expected that when the report was issued, there would have been a prompt announcement of follow-up action by the DOT.

Regrettably, there was no such announcement, either at the time the report was issued, or in the following months.

So, in July, I decided to take the initiative, and wrote the Department asking them to respond to a number of questions dealing with the effects of CRSs on airline competition, and whether any further Government action is needed.

I also advised the Department that we intended to hold a hearing in the Fall to evaluate DOT's answer to these questions.

To obtain an independent viewpoint, I also asked the General Accounting Office to consider the DOT report and related questions.

GAO's answers to the questions I posed confirmed my view that the DOT report contains strong indications of CRS problems which warrant serious consideration of further actions.

GAO will be a witness this morning and will discuss their findings in detail.

However, at this time, I would like to summarize some of the questions I asked the GAO, and how they responded.

First, I asked the GAO whether it believed that revenue transfers to CRS owners of the magnitude found in the DOT report would have any effect on airline competition, including scheduling, fares, equipment decisions, and cities and markets to be served.

The GAO's answer was, and I quote,

> We believe that transfers of this magnitude would be likely to affect all of these elements of airline competition.

I also asked the GAO whether it had any opinion on the effect of the market power of the CRS vendors on new entry into air transportation, and on the ability of new entrants to survive.

And GAO responded that, and I quote,

> It seems likely, based on the data presented in the DOT report, on the size of revenue transfers, and on our analysis of the likely competitive effect of these transfers, that the market power of CRS vendors does inhibit new entry and threatens the ability of new entrants to survive.

The GAO was also asked whether, on the basis of the DOT report, they saw any sound reason why DOT should not have made a recommendation for action to deal with the competition problems.

The GAO's answer was, and I quote,

> We believe that there is sufficient evidence in the DOT report to indicate that a problem exists, and that a rulemaking should be opened.

Now, at today's hearings, we will consider GAO's analysis of the DOT study and the need for follow-up action.

We will then hear from the Department of Transportation what actions they have taken to deal with the CRS problem since their report was issued three months ago, and on their plan for action in the future.

At a later date, we may hold further hearings to obtain the views of the industry and other interested parties on these issues.

At this time, I'm pleased to see with us the Ranking Republican on the full Committee on Public Works and Transportation, our very good friend and colleague Mr. Hammerschmidt from Arkansas. At this time, I yield to our fine colleague from Arkansas.

Mr. HAMMERSCHMIDT. Thank you very much, Mr. Chairman.

You know, back in 1983, this subcommittee held a hearing on airline computer reservation systems. And that hearing focused on allegations that computer reservations systems were being used in an anti-competitive manner, to the detriment of the traveling public.

At the time, I said that it was our intent to determine that if any Government action is required to remedy these alleged abuses.

Well, five years later, we are still asking the same question. Is Government action required?

Of course, there's been some action. The old CAB did issue a rule in 1984 outlawing the system's preferential listing of flights of the computer reservation system's owner. But this seemed to mainly shift the controversy from the issue of biased flight displays to the issue of excessive booking fees.

Since the CAB rule, there have been several studies of the computer reservation system controversy, and the booking fee issue. Justice Department has studied the issue. The General Accounting Office did so as well.

Finally, last May, the Transportation Department released their study.

All these studies did an excellent job of uncovering the facts and discussing the issues. However, none answered the basic question of what, if any, Government action is required.

We expected the DOT study to answer this question, but the Secretary chose to issue the study without any conclusions or recommendations.

So, hopefully, in this hearing we can get answers to the many questions involved in the computer reservation system controversy.

These include:

Are booking fees too high?

Should the contract between CRS owners and travel agents be changed to reduce the contract link and eliminate minimum use and liquidated damage clause?

Are CRSs now used as an anti-competitive tool to the detriment of the travelers?

And most importantly, what, if anything, should we be doing about it?

Now, I look forward to answers to these and other questions on this controversial issue, and would like to join you, Mr. Chairman, in welcoming the witnesses here today.

I want to just comment further that it's a very interesting response to your letter that you referred to from the GAO, very important, especially where it says, "We believe the DOT needs to consider and ought to approach and address these problems."

Particularly when they suggest that we get into the rulemaking procedure, that DOT get into the rulemaking procedure.

So, I'm very appreciative for you, Mr. Chairman, and the Ranking Member, Mr. Gingrich, for giving me this time and letting me be here this morning.

Thank you.

Mr. **Mineta**. Thank you very much.

At this time, I'd like to yield to our very fine colleague from Georgia, Mr. Gingrich, the ranking Republican on our Aviation Subcommittee.

Mr. Gingrich?

Mr. **Gingrich**. Thank you.

Let me first commend both Mr. Mineta and Mr. Hammerschmidt, because it was the letter which I believe they signed with Sen. Kassebaum which began the process of DOT developing its study of airline computer reservation systems. I think that it was a legitimate part of the Congressional function to explore what is an unfolding area.

I'd like just for a moment to place this in two kinds of context for our listeners, and for people who are interested in why would we be looking at computer reservation systems.

The first context is that, in fact, the computer reservation systems may have as much or more to do with airline competition as any other part of aviation.

The travel agent you call, the airline you call, when they look at the computer reservation system they're using, it has a very direct impact on the choices you're offered.

For example, whether an airline or a computer system has—to use the fancy term—an algorithm, or a formula, which happens to put all of their flights on the first screen which shows up on the television screen or the video screen that the agent is looking at can have a decisive impact on who gets booked where. I think the evidence is that 90 percent of all of the flights are booked from the first available screen because that's easier for the travel agent, or the reservation agent.

So, in that sense, there's a tremendous secondary effect of computer reservation systems on who gets to fill up their airplanes first, when do you maneuver in terms of scheduling your flights, does an airline which owns a computer reservation system, for example, because it is loading in everybody else's flights, does it then have a time advantage of restructuring its schedule based upon the information it's gotten from the other airlines?

All of that relates to how truly competitive the actual physical airplane is.

But there's a second area where Congressman Mineta and Congressman Hammerschmidt have begun to break very, very important ground, and that is, we are making the transition from an industrial age, one in which producing physical goods was dominant, to an information industrial age—one in which the data that you have may be as powerful as the physical goods.

We're going to run into common carrier problems. Throughout the 19th century, the issue of pipelines and railroads and canals had to be dealt with as an issue of transportation equity. And when someone had what was called a common carrier, as turned out in the classic case of Standard Oil and John D. Rockefeller, they could put all of the producers of goods out if they cheated in the way they used their control of the common carrier.

In an information industrial age, those who control the systems of communication, the systems of information, may have the power literally to make or break an airline. And there are some very serious concerns that we have to address in the degree to which we are really breaking ground in information law, and in creating common carrier law at the information level.

I think that the Department of Transportation and GAO are to be commended for the work that they're beginning to do, which is really pioneering. This will, I think, in parallel with what's happening in banking and what's happening in other industries, become part of the lawmaking of the 21st century, in the way in which we deal with common carriers in an information industrial age.

Let me say, finally, all of this comes down to very practical, everyday, small business real concerns. If you are a travel agent trying to go into business, how difficult is it for you to get a computer reservation system, and to what degree to you become like a 19th century sharecropper, essentially owned by the system that you now lease?

To what extent do you have a choice, and can you break out of that lease?

To what extent is there truly competition between the various systems?

To what extent does the traveler become trapped in a series of systems that themselves become, if not monopolies, certainly oligopolies.

All of these considerations are very real, and very practical and at the margin they can mean not just profitability and non-profitability, they can literally mean life and death for a particular airline in a particular market.

So, these are very practical, very real concerns. And to look at the computer reservation system is to look at one of the cutting edge components of airline deregulation. And in that sense, today's hearing is a very, very important building block in looking at what's going to happen to a deregulated industry over the next 10 years.

I appreciate very much Chairman Mineta calling this hearing, and I look forward to the testimony.

Mr. MINETA. Thank you very much.

Mr. Boehlert?

Mr. BOEHLERT. Thank you, Mr. Chairman.

First of all, I applaud your persistence with this issue. You've demonstrated some clear leadership that is really needed.

The CRS market certainly needs some adjustment if we are to maintain a healthy, service-oriented environment for our travel industry.

We're not here to insist that the Government should jump right into the middle of the computer reservation system's structure. But most of us here do have some real concern with the present system, and few of us will deny that some Government direction might be necessary.

This subcommittee strongly supported the Chairman's efforts last year to address some of the same problems we're talking about again today.

You can be sure that we'll continue to voice concern until some basic changes are made.

For the myriad of flights and travel services offered to the American public each day, we have only five major computer reservation system vendors. Five.

Of those five, two clearly dominate the system. Between them, they book over 70 percent of all air travel revenues.

Clearly, we're talking about an oligopoly.

The unfairness of such a structure becomes very evident when we look at the problems faced by the public, travel agencies, and non-vendor airlines who are forced to utilize this system.

The public often faces wide discrepancy between agencies trying to find last-seat availability on certain flights.

Travel agencies find themselves locked into vendor contracts with airline companies who having once dominated their local market, have now pulled out of that market.

Airlines are prey to the built-in biases of the computer reservation system they fall under in a particular market, all the while paying substantial fees to their rivals for bookings under that system.

Certainly we can find many instances where the system is working well, and where everybody is happy, but let's not overlook the other side of the coin.

Serious problems with the present structure do exist, and they're apparent in more than just isolated cases.

I'm concerned that this report may be trying to convince us that all things considered, everything is just fine. Everything is not just fine, nor should we be convinced that the Government cannot play any constructive role in this matter.

I'm one of those on this subcommittee who thinks that airline deregulation has been good for America. We have a booming, safe, modern system for all to enjoy.

But I also know that we cannot count on altruism by the airlines to solve certain problems in the industry as they crop up. In fact, the Government has played a constructive role in this arena all along.

Government's action was necessary to prevent computer reservation systems' display bias. Government action was necessary to stop second screen bias, after the anti-bias rules were adopted. And Government pressure was necessary to secure CRS vendor commitments that contract rollover provisions would not be enforced.

The result of these actions improved the system, if only marginally. Our role here today, Mr. Chairman, should be to honestly assess whether or not there is more to be done, and, if so, whether we, collectively, should act.

I feel there is more to be done, and after this hearing, I hope we will work together to move beyond the findings put forth in the Department of Transportation report to come up with solutions to the problems we face. And I hope that the Department of Transportation will lead that effort.

Let's not be content that one report can put concerns to rest. Instead, let's build on the good efforts that have already been initiated, and work together to really address those concerns.

Thank you, Mr. Chairman.

Mr. MINETA. Thank you very much, Mr. Boehlert.

Mr. Packard?

Mr. PACKARD. Thank you, Mr. Chairman.

I do not have not a prepared statement, but I would like to just make a comment or two.

First, thank you for holding the hearing and following up on what we participated in together a few years ago on this issue.

I do hope, however, that as we deliberate on this issue, that we will not simply lose sight of the fact that industry has put a significant amount of R&D and implementation of the system in. They've invested heavily into the system, and they have the right, of course, to receive a return on that investment.

I do believe that there are some things that can and ought to be studied and done, to bring about and maintain fairness and equity as much as possible. I don't believe it's wise for us to assume that just because there's success by some portion of the computer industry, or in the computer reservations system, that, therefore, we ought to transfer that success to those who were unwilling or unable to invest, and to involve themselves in an entrepreneurial process. And simply because it has now brought about a great deal of success, I don't think that we ought to assume that Government ought to transfer that success to those who are unwilling or unable to do so.

But I do believe that there are some inequities that we ought to study, and I agree totally with the general thrust of our hearing. Hopefully, it will come about where we will be able to do our role properly and still allow the private sector to do their role properly.

Thank you.

Mr. MINETA. Thank you very much.

Any other opening statements? If not, let me call forward at this time Mr. Victor S. Rezendes, the Associate Director, Resources, Community and Economic Development Division, United States General Accounting Office.

Mr. Rezendes, we do have your statement. It will be made a part of the record. Please introduce your colleagues and proceed in your own fashion, sir.

TESTIMONY OF VICTOR S. REZENDES, ASSOCIATE DIRECTOR, RESOURCES, COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION, UNITED STATES GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY JAMES NOEL AND JACK WELLS; AND ROBERT McCRINDLE, MEMBER, HOUSE OF COMMONS, BRITISH PARLIAMENT, CHAIRMAN, PARLIAMENTARY AVIATION COMMITTEE (SITTING AT ROSTRUM)

Mr. REZENDES. Thank you.

I'd like to introduce my colleagues with me today.

On my left is James Noel, a Group Director responsible for our economic analysis work.

And on my right is Jack Wells, our economist, who's in charge of this specific project.

With your permission, I'd like to submit my full statement for the record and summarize it here, if I may.

We appreciate the opportunity to comment on the Department of Transportation's recent report on the potential anti-competitive effects of airline-owned computerized reservation systems.

Overall, we believe that airline-owned CRS's earn profits exceeding those that could reasonably be expected to be earned in a competitive market. And these profits reduce competition in the air passenger market, because they artificially raise the costs of participating airlines.

We believe further that based on these findings, some remedy by DOT is warranted.

The airline that owns the CRS receives two direct forms of revenue. First, every time a flight is booked, it receives a booking fee from the airline whose flight is selected. In 1986, these fees were most commonly $1.85 for each flight segment.

Second, the travel agent that uses the CRS pays a subscription fee to the vendor. These fees are negotiated between the vendor and the agent, and range on the average from $5,000 to $11,000 per year.

The travel agents in turn charge the airlines whose flights they book a commission—about ten percent of the ticket price.

The airline that owns a CRS is also able to sell more airline tickets by virtue of its CRS ownership. These additional airline revenues are called incremental revenues. Their source was quite apparent prior to 1984.

During that period, airlines that owned CRS's typically biased the display of flights on travel agents' video screens to give preference to their own flights.

In November, 1984, a CAB rule became effective prohibiting biased displays of flight information.

Two years ago, we reported on the possible anti-competitive effects of CRS's. That report recommended that DOT study two issues: the size of the persistent incremental revenues, and the effects of booking fees.

You supported our recommendation, and at your request, DOT has now completed its study. The DOT study provides a wealth of information. While valid criticisms have been made of the report, we believe that, on the whole, the report is an excellent piece of analysis, and provides adequate data to answer five key questions about the potentially anti-competitive nature of the CRS industry.

The first question is, are CRS vendors still receiving incremental revenues? Because incremental revenues transfer income from both minor and non-CRS vendor airlines to the major vendors, they limit competition in the airline industry by giving major CRS-owning airlines an artificial competitive advantage.

The DOT report estimates that, after the CAB rule went into effect, these revenues increased CRS vendor airline revenues by 12 to 40 percent of what the revenues would have been in the absence of a CRS ownership.

The second question is, are CRS vendors charging booking fees that significantly exceed cost? Booking fees that significantly exceed cost create distortions in the airline marketplace by unnecessarily raising the cost of air travel.

The DOT report estimates that, for the two major CRS's, booking fees averaged $1.85, about double the cost of providing the booking, including the cost of capital and a provision for a reasonable 15 percent profit.

We believe these results indicate that airline-owned CRS's are using their market power to charge booking fees that exceed those they could reasonably charge in a competitive market.

As we indicated in our report two years ago, and as the Justice Department also emphasized in their report in 1985, the level of booking fees is not determined in competitive market. Competing airlines who pay the booking fees have little alternative. Declining to pay these fees would substantially reduce the likelihood that travel agents would book passengers on that airline.

For example, in 1984, Continental Airlines declined to pay booking fees to PARS, one of the smallest CRS's, for six weeks. Continental believed that the decline in revenues was so great, it was forced to resume paying the fees.

By contrast, the level of travel agent subscriptions, the other major source of CRS vendor income, is determined in a more competitive market. A travel agent can choose to subscribe to a different CRS, if he finds the subscription fee charged by one too high.

CRS vendors still have significant market power, even with respect to travel agents. But this power is more limited than their market power over competing airlines.

This differential degree of market power is reflected in the fees they charge. While DOT found that booking fees for major CRS's were double their cost, travel agent subscriptions for all vendors ranged between 66 and 85 percent of cost.

The third question is, do booking fees and incremental revenues cause substantial revenue transfers between airlines?

Although the DOT study does not report the size of these transfers, our estimate, based on the 1986 DOT data, shows that these transfers were substantial. For SABRE and APOLLO, over $300 million annually went to each.

The other three vendors had revenue transfers ranging from $46 to $84 million.

These transfers, because they exceed the cost of the services provided, reduce competition in the industry by artificially imposing a cost penalty on some carriers and subsidizing others.

Such transfers could force non-vendors or minor vendors to exit or avoid entering markets where they would otherwise have been competitive.

The fourth question is, do CRS vendors receive high profits? High booking fees and incremental revenues contribute to high profit rates. The DOT report data indicate that the internal rate of return for APOLLO and SABRE through 1986 was between 53 and 130 percent.

These major vendors believe that their profits are justified by the risks involved in developing their systems. Based on our analysis, we do not agree.

When the establishment of CRS's was being contemplated in the mid-1970's, only two airlines—United and American—had a sufficiently broad National route structure and a sufficiently large revenue base to make the unilateral development of a CRS worthwhile.

We believe that the success of United and American in establishing profitable CRS's is due to the inherent advantage provided by the route structure awarded them by CAB.

The final question is, do provisions in CRS contracts unnecessarily restrict competition? Some contract provisions discourage travel agents from switching vendors, reduce competition in the market for servicing travel agents, and also perpetuate the revenue transfer to major CRS vendors cited earlier.

These provisions include the five-year length of the contract, minimum use clauses, and liquidated damage clauses. These contract provisions particularly affect competition between major CRS vendors and minor vendors.

By discouraging agents from switching, they make it more difficult for the minor vendors to sign up enough travel agents to prevent a net outflow of booking fees. As a result, these provisions have a negative effect on the minor vendors' ability to compete in the airline market.

By making the agents captive to a single system for extended periods of time, these provisions also deny the travel agent the opportunity to shop freely in the CRS market.

The DOT report summarizes these contract provisions and provides some data related to their competitive impact.

The report notes that less than 5 percent of the almost 25,000 travel agent subscribers switched systems in 1986.

Let me now turn to the future competitive structure of the CRS market. DOT's projections of revenues for CRS vendors shows continued high profits, with no expectation of reduced market power due to new entry.

DOT also assesses the possibility that technical developments could change the competitive structure of the CRS industry, and finds it unlikely that any such change will occur in the next two to five years.

For example, while personal computers are replacing dumb terminals in travel agent offices, the enhancements they provide are unlikely to change the competitive structure of the industry.

DOT's report does not discuss a key question that we recommended they address, namely what action is appropriate in view of their analysis?

We believe, in view of DOT's empirical results, and in view of the analysis conducted over the past five years by the CAB, the Justice Department, and GAO, that further action is now warranted to ensure that the benefits of airline deregulation are not nullified by the anti-competitive effect of airline ownership of CRS's.

We emphasize that there are several competitive problems in the CRS market, and no one remedy will address all of them. In fact, a remedy for one may exacerbate another.

Thus, multiple remedies may be needed.

The problem of revenue transfers between airlines can be addressed by divestiture—requiring airline owners of CRS's to sell them to non-airline owners—or establishing an industry-wide airline consortium to operate a common industry system.

There are various ways to limit or reduce excessive booking fees. None of these would address the problem of incremental revenues. All of them, with various degrees of success, address the problem of inter-airline revenue transfers due to excess booking fees.

Another policy option concerns travel agent contracts. The market between the travel agent and the CRS vendor is more competitive than the market between the CRS vendors and other airlines, but it is not as competitive as it could be. A travel agent can choose from among five different CRS vendors, but the agent's freedom of choice is limited by several factors: contract length, minimum use clauses, and liquidated damages.

Such provisions make it costly for an agent to consider breaking a contract. An agent in the middle of a five-year contract has little practical choice about which vendor to use, no matter how attractive the competive system might be.

Remedies which control all or some of the effects of these restricted contract provisions would allow an agent to escape from the restrictive contact more quickly and at a lower cost.

In conclusion, we are not prepared today to recommend specific action. But based on the results of the DOT study, we believe that the time has come for the Department to review and adopt appropriate remedies for the anti-competitive features of the CRS industry.

DOT has the statutory responsibility to protect competition in the airline industry. The airline industry has experienced an increase in concentration over the last three years which may threaten the improvements, in fares and service quality, that have resulted from deregulation.

Several of the airlines we spoke with said that no airline can survive without an ownership stake in a CRS. If existing non-vendor airlines are forced out of the market, and if others are denied entry, competition in the airline industry will deteriorate, fares will rise, and service will suffer.

As a result, it's important to take advantage of whatever opportunities exist to enhance competition in the industry.

Mr. Chairman, that concludes my statement. I'd be happy to take any questions.

Mr. MINETA. Thank you very, very much, Mr. Rezendes.

Let me take the prerogative of the Chair at this point to introduce a very distinguished guest in our hearing room today, a member of the British Parliament, Mr. Robert McCrindle.

Mr. McCrindle is the chair of the Parliamentary Aviation Committee, and is very, very knowledgeable on the computer reservation system issues on his side of the Atlantic.

So, his committee yesterday issued The House of Commons Transport's own report on to computer reservation systems, and we look forward to reviewing that document.

And I'd like to have Mr. McCrindle join us up here as part of this hearing panel today.

So, Robert, please come forward and join us up here on the rostrum.

Mr. MCCRINDLE. Thank you, Mr. Chairman.

Mr. MINETA. We're pleased to have you with us here, Robert. Please feel free to participate with us.

Mr. Rezendes, in justifying its reluctance to take action on the CRS problem, the Department of Transportation argued that although CRS ownership may give some carriers competitive advantages, there are lots of factors that give other carriers competitive advantages, such as lower labor cost more efficient aircraft, and the benefit of hub and spoke systems.

The Department of Transportation's apparent reaction is to throw up its hands, and suggest that because you can't sort out the value of each of these factors, maybe you shouldn't do anything about the computer reservation system problem.

I'm wondering, what is your reaction to this position that they take?

Mr. REZENDES. Well, we certainly don't favor inaction.

In fact, some of the competitive advantages that you mentioned earlier are the type that are available to all airlines.

Each airline can buy more efficient aircraft, reduce its labor cost, etc. But the problem with the CRS system is that a competing air carrier cannot readily enter the CRS market.

Even if they had the high capital it takes to develop the software, the restrictions in the travel agent contract provisions between the vendors and the travel agents make it extremely difficult for a new entrant to penetrate that distribution network.

Mr. MINETA. Now, one major difference between the GAO's reaction to the Department of Transportation report and DOT's own reaction relates to the amount of industry revenues that go to United and American from other airlines.

The Department of Transportation study recognizes that American and United receive hundreds of millions of dollars every year from other airlines in booking fees and incremental revenues.

DOT appears to downgrade these revenues transfers because they are unable to estimate the extent to which the added revenues that are received by American and United are offset by similar payments which United and American make to other carriers.

GAO appears to agree that that data in the DOT report does not provide a basis for the estimate of the net gain realized by American and United, yet, as I understand it, you are satisfied that there is enough of a revenue transfer to American and United to indicate a need for Government action.

Do I correctly understand your position, and could you explain how you reached your position that action is needed, even though you are unable to make a precise estimate of the net revenues that are transferred to American and United?

Mr. REZENDES. Yes.

You do correctly understand our position.

First, I'd like to start off by saying the basic problem that booking fees exceed—substantially exceed—costs, and the fact that incremental revenues persist clearly indicates to us that the CRS vendors are exercising their power in the market.

Getting back to DOT's point that they can't estimate the actual net outflow of incremental revenues—as we indicated in our testimony, each of the two major CRS vendors receive over $300 million annually in incremental revenues.

The other three minor vendors, in total, receive less than $200 million. Even under a worst case scenario, assuming that the three minor vendors receive all their income from the two majors, each of the two majors would still be receiving a net of over $200 million each annually. So it's a substantial amount.

But more importantly, besides just the fact that they're already receiving substantial transfers, one of the things that we're very concerned about is that there's no cap, there's no market mechanism in place that will prevent these from going even further than what they are today.

As I mentioned in my testimony, booking fees average twice the cost of what it cost the airlines to provide those services. On average, they're about $1.85.

We're already seeing that these booking fees are increasing. By providing direct access to travel agents to specific seat assignments, we're seeing that they are charging the airlines an additional 25 cents per booking. So, we're seeing that creep from $1.85 to $2.10, and I guess our major message this morning is not only are we concerned about the excess fees that are being charged today, but we don't see any moderating force that's going to control these in the future.

Mr. MINETA. Now, another argument by the Department for inaction appears to be that although booking fees may be twice a CRS carrier's cost, they are still a bargain to carriers who don't own their own computer reservation system, because it would cost these carriers a good deal more to independently provide these services on their own.

I'd appreciate your comments on this argument.

Mr. REZENDES. Well, it all depends on how you look at it, and what an alternative system would be.

If DOT's point is that each of the airlines in the United States should develop their own computerized reservation system, then we would probably agree. It would be very costly, and the present system is a bargain.

But I don't think that's really the point here.

The point is that we don't have the market forces operating in the CRS market, and if we had a fair playing field, we'd see the charges that are being charged on booking fees and subscription fees go down.

Mr. MINETA. Another argument that is frequently made against Government action on the CRS problem is that although American and United airlines may realize high profits from their computer reservation system business, the profits are justified because American and United built a better mousetrap, or took the economic risk to build this kind of a system. Under our economic system, they're entitled to realize high profits. Do you agree with this approach?

Mr. REZENDES. Well, we would agree that anyone who comes up with a better mousetrap is certainly entitled to a return on that investment—with a little caution.

As we indicated in our statement, only two airlines—United and American—had the route structure and the revenue base to create a profitable CRS. They were in the market, they were positioned in the market to do that primarily because of Government regulation. Their routes were awarded based on CAB controls.

That's the primary point.

In addition, although they're entitled to rates of return—to give them a reasonable rate of return on their investment, we found in the DOT study, for example, that the rates of return for the two majors average anywhere from 53 to 130 percent on investment, annually. Those are rather high rates of return, especially if you compare them to other industry segments, which run anywhere from probably 15 to 35 percent, which would be more reasonable.

But assuming the fact that they could receive these high rates of return initially, again, I'd like to emphasize that we don't see anything that's moderating these in the future. Although they're entitled to a return today, that should not be in perpetuity in the future. They shouldn't be entitled to excessive profits.

Mr. MINETA. Let me at this point yield to my colleague from Georgia.

Mr. GINGRICH. The reason I want to pursue this for a second, I guess, is that as a Conservative, I don't have any objection to legitimate high rate of return to an industry which has a unique innovative opportunity.

McDonald's, for example, having invented Egg McMuffin makes a 300 percent return per Egg McMuffin. I don't care.

But what I do care about is if the rate of return is a function of having an entrenched and unchallengeable advantage in a common carrier environment.

Mr. REZENDES. That's correct.

Mr. GINGRICH. And would you comment on the distinction and your analysis of those two?

Which are we talking about here? A high rate of return because, like Disney World, they're offering a unique product for which they have legitimately cornered the right kind of market, or they're retaining a high rate of return possibly because they've structured the market so that it's very hard to compete with them. Which is it?

Mr. REZENDES. I think it's definitely the latter.

I think we point out in our testimony, the major CRS's are entrenched in the market. They control over 75 percent of the reservations.

The minors have a very difficult time because of the contract provisions, getting into the distribution network with the travel agents. As a result, it's more the market structure than coming up with a better mousetrap.

Mr. NOEL. If I could add a couple of things here.

The other point is that the participating airlines really don't have a choice in participating in the system. If you want to go to Disneyland or get an Egg McMuffin, you can certainly go down the street and go to Knott's Berry Farm or some other place, and take your activity there.

They have to participate in these systems, and therefore have to pay booking fees.

The other key point is—and DOT's own study certainly shows this—it's very unlikely that anybody's going to enter this market and provide a better mousetrap, or a different mousetrap to compete with them. So you really have a fairly rigid oligopoly here that you're dealing with.

Mr. MINETA. In a letter to me, the Department of Transportation points to recent developments in the computer reservation system industry which suggest that the industry may be getting more competitive.

DOT cites a magazine survey indicating that one in ten travel agency locations have switched reservation systems in the past two years. The fact that United has recently sold a 50 percent interest in the Apollo system to a group of domestic and foreign airlines, and the fact that a consortium of foreign carriers are developing a computer reservation system of their own.

Now, do you think that these trends are significant, and do you think that they make it likely that there will be significant changes in the competitive picture in the computer reservation industry in the next few years?

Mr. REZENDES. No.

We're not optimistic at all that there's going to be any change in the market in the next few years.

In fact, DOT's own projections of revenues earned by the CRS industry show that they're going to continue to be high over the next few years.

As we indicated earlier, we don't see any technological changes coming in, or any new entrants in the market, that are drastically going to impact on that.

Now, DOT mentions that only 10 percent of the travel agents switched in the last two years. Conversely, that means 95 percent, in a given year, did not switch. The vast majority are locked into contracts and don't have the opportunity to go to a competitor.

Do you want to comment on the United?

Mr. NOEL. Yes.

I think it's important to recognize the environment——

Mr. MINETA. Mr. Noel, could I ask you to pull the microphone up a little closer?

Mr. NOEL. Okay. To recognize the environment in which United sold its system to the five other airlines, or sold a half-share in it.

First of all, they were looking to capitalize some of their assets, and this was an asset that they clearly believed was very valuable to them and that the other airlines have a similar view of. They were able to sell it for $500 million, half of it, to these other airlines, which was quite a bit larger than its book value.

Secondly, with respect to the international area, I think the international carriers recognize the value of CRS as a profitmaker and as a distribution system, and are looking to extend this technology in their arena. In order for them to come in and compete here, there would certainly have to be some legal changes with respect to cabotage. In addition, they would have to break into the locked-in travel agent base that the other minor vendors find it so hard to get into.

Again, as Mr. Rezendes says, we're not real sanguine about the future of competition in this area.

Mr. WELLS. I'd also like to add, Mr. Chairman, that our interviews with CRS vendors indicate that the rate at which the minor CRS vendors are converting travel agents from the major vendors had slowed down somewhat in 1988 from the conversion rate that was going on in 1986 and 1987.

Mr. MINETA. Mr. Gingrich.

Mr. GINGRICH. Let me review two parts of what I understand. I just want to make sure that I understand the point you're making.

The first is that you have, if I understand it, in the nature of computer reservation systems, an opportunity to exploit both ends of the marketplace—that is, to both raise the ante on the travel agent and the passenger, and to raise the ante on participating airlines other than the CRS owner.

Is that an accurate——

Mr. REZENDES. That's correct.

But I think the worst effect is on the airlines. They have really no alternative other than to pay the booking fees. In fact, they can't control the booking fees, and they can't really turn them off. If they refuse to pay, as Continental did in 1984, their revenues are going to drastically go down.

Basically they're captive to the market.

Mr. GINGRICH. For all practical purposes, do all major airlines use all major reservation systems?

Mr. REZENDES. From what we understand, they do.

There's only one exception. Southwest, which only uses a minimum amount of booking. They readily admit that they're a niche carrier with a low cost service and that no other carrier could basically compete similar to Southwest in the National market.

Mr. GINGRICH. To what extent does the fact that, for example, the Apollo system is now owned by a much wider range of airlines—I believe four European airlines plus U.S. Air now are participants—to what extent does that change your analytical approach?

Mr. REZENDES. Really not by very much. United still owns over 50 percent. As James mentioned earlier, United sold that for a half billion dollars, which was about four times the book value it was worth to them.

It's a——

Mr. GINGRICH. Let me ask a question.

Does that reflect more the United analysis of how much Apollo was worth, as they gave it out over the last few years, or does that reflect more the outside observers' analysis of how much Apollo was worth?

Mr. NOEL. I believe that was United's analysis.

Mr. GINGRICH. So if you went back and looked at the five percent return, etc., that United was suggesting, the amount they got for half of Apollo fit about what they said it was worth.

Mr. WELLS. The market value—the $500 million was the market value.

The book value was estimated by DOT in its report, and the 50 percent share that was sold for half a billion dollars is equivalent to the total market value for the whole system of $1 billion.

DOT estimated in its report that the book value was about $250 million. Therefore, the market value was about four times DOT's estimate.

Mr. GINGRICH. Okay, but I also understand—my impression was that there was an argument at one point between various analysts of what the rate of return was for various systems, and that outside analysts were coming up with very high rates of return, and the actual systems themselves were arguing for a much lower rate of return.

Now, by definition, percentage times rate of return—there should have been some way to work your way back to a probable value. All I'm curious about—and you may not have done this work, and please don't let me put you in a spot—but did the $1 billion value tend to reflect what United had been saying earlier about what Apollo was worth, or was that dramatically more than what United had been saying earlier was a reasonable way to value the Apollo system?

Mr. WELLS. We haven't done a calculation of the equivalence between the rate of return and the market value, but the estimate that United made back in 1985 of the rate of return did not include any incremental revenues earned by the system.

Consequently, we reported in 1986 that that was a significant underestimate of the real rate of return of the system.

DOT, in its recent analysis of rate of return, did include incremental revenues in calculating the rate of return, which we think is the correct approach.

Mr. REZENDES. If I might add to that, you indicated earlier, you know, concern about what the impact of 50 percent of the sale is.

Since United still controls 50 percent and will manage the system, basically there'll still be that incremental revenue—they're going to receive a positive transfer of incremental revenues from the other airlines. It's just that the profits, obviously, would be distributed differently.

Mr. GINGRICH. Okay.

Let me ask one other question on my line, and that is, if United were to totally externalize control—just sell it, for money—would that change your analysis? If suddenly tomorrow morning Apollo was a totally autonomous system?

Mr. REZENDES. That would not control booking fees. Obviously whoever would control it, whether in fact it was an airline or a private firm not related to the airlines, they would still have control over airlines' booking fees and could charge whatever they want.

Where it would impact is on incremental revenues, since a non-airline owner would not be receiving incremental revenues by biasing travel agents to select their flights. It should reduce that.

But in turn, if a non-airline owner were buying it with the intent of earning the same return that an airline would be getting, we would suspect that subscription fees and booking fees would go up, to compensate for the loss of incremental revenue.

Mr. GINGRICH. But if I can translate back to make sure that I understand, for a second—you are arguing that we are faced here not only with an unacceptable ownership advantage problem, but that even in an autonomous system, we might well be faced with a common carrier problem, that an unregulated common carrier has certain inherent monopolistic characteristics.

Mr. REZENDES. That's exactly correct.

Mr. GINGRICH. Okay.

Have you developed, at this stage, a set of generic principles that you think should be applied by DOT if they go to rulemaking?

Mr. **Rezendes**. There are a number of alternatives. I think we point them out in our responses to the questions of the subcommittee.

None of them individually will solve all of the problems. In fact, as we indicated earlier, it's probably going to take multiple actions to address these. Once you start regulating one, or controlling one, you're going to exacerbate another problem.

It's almost a cafeteria—style sitution. You can shuffle the deck various ways and come up with various solutions as to how to address this, such as, for example, reducing the contract length between the vendor and the travel agent, without impacting on minimum use clauses and liquidated damages, by reducing the contract from five years to three.

You make it less costly and easier for the travel agent to get out and shop around.

You could control booking fees. You could reduce them to zero, you could freeze them where they are, you could make them a function of cost. That has the inherent effect of getting the Government back into economic regulation of the airlines, which is a difficult thing.

Then you also have a consortium—have an industry-wide system. If you could get all the airlines to agree on a common system, where they all share in the profits from that, you would eliminate a lot of these problems.

Mr. **Gingrich**. Let me ask—that would also conversely minimize the rate of change and maximize—you would then have created a natural monopoly.

Mr. **Rezendes**. That's correct.

Mr. **Gingrich**. It would seem to me—and I just commend this to you to think about, and also DOT—one of the lessons of the century in trying to regulate transportation monopolies, as opposed to information monopolies, is that it is useful for Governments to reestablish avenues for competition.

It is not particularly useful for Government to try to become a regulatory system supervising the competition. Because what you do is you very rapidly train the competitors to own the bureaucracy.

The competitors have the highest value in dominating whatever regulatory bureaucracy you establish, and therefore the impact over time is that almost invariably, you end up with the systems being regulated dominating the regulators.

All you've done is added a new layer of cost, created a zone for more lawyers and fewer managers.

The reason I mention that is that I would hope, as you go back and rethink this, and if we do move forward, as I suspect we will, in encouraging DOT to go to rulemaking, you would think very seriously about the question of how we could create an arena of competition and establish principles which ensure competition, but minimize the degree to which Government becomes a player within that arena.

I appreciate very much—I think your work has been very helpful, and I think we've made some progress.

Thank you.

Mr. **Rezendes**. Thank you, sir.

Mr. **Mineta**. Thank you very much.

Mr. Payne?

Mr. **Payne**. No questions, Mr. Chairman.

Mr. **Mineta**. Mr. Packard?

Mr. **Packard**. Thank you, Mr. Chairman.

Mr. Rezendes, if Government sets up some form of regulatory or legislative solution to the anticompetitive aspects of the CRS, it appears that one of two results would probably happen.

One is that we would either redistribute the profits of the CRS system over a greater number or all of the airlines, through some regulatory process or legislative process, and that would solve the anti-competitive aspects.

Or, it would be restructured in a way that would return the existing operators of the CRS systems to a reasonable return, as you've outlined, maybe 15 or 35 percent rather than excessive profits, and then return the balance of that to the riding public.

I would see these as the two outcomes of whatever we would do. Maybe there are some others that I don't see—or a combination of these two.

In other words, distribute to more airlines, or all the airlines, so that they would share the wealth of the system, and therefore make it more competitive, or return some of it to the riding public to benefit them.

Would the recommendations that you make, or the things that this committee could consider, be influenced by what our objective would be, to improve or benefit the riding public or to balance out the competitive issue to all of the airlines?

Would that change the recommendations that you or DOT or other agencies make in trying to solve the problem?

Mr. **Rezendes**. I'm not sure exactly how it would impact.

Our basic message here is that we'd like to see a fair playing field. We'd like to see each CRS be able to compete in the marketplace with others.

We think that if you did that, then in fact these benefits would come automatically. Not only would the rate of return go down, but more than likely the airline ticket price would probably go down.

Let me give you an interesting statistic. We talked here about booking fees being on average $1.85 per booking fee.

The profit margin on an industry average, per seat sold, per passenger carried, is only $1.00 or $2.00 seat. So, we're talking about an industry that doesn't have a high profit margin to begin with.

A booking fee of $1.85 looms heavily to an airline. So to the extent that they can reduce those, we indicated in testimony booking fees are probably twice the cost of providing that service, including a 15 percent profit on their investment. If it were in the $0.90 to $1.00 range, that reduces the ticket price by $0.85, I would assume, that would drastically improve the airlines' profitability.

Mr. **Packard**. Have we heard from the travel agencies or received recommendations from them, as to what they would like to see implemented to better balance their options and opportunity to access all of the airlines?

Mr. **Rezendes**. Yes, we have.

In fact, Jack has talked to them.

Mr. **Wells**. The American Society of Travel Agents has sent in a petition to DOT which requested several changes in the existing rules governing contracts between the vendors and the travel agents.

They requested that the maximum term of those contracts be reduced from five years to three years, they suggested the minimum use clauses in those contracts be eliminated, and they requested that liquidated damages provisions in those contracts be eliminated, so that the travel agents have taken a position in favor of giving the travel agents more choice in the market as to which CRS vendor they use.

Mr. **Boehlert**. Would my colleague yield on that?

Mr. **Packard**. I'd be happy to yield.

Mr. **Boehlert**. I just would like to point out for the record that the American Society of Travel Agents, on numerous occasions, has petitioned the Department of Transportation and consistently have been met with a stone wall—no response.

I'll have some questions for our next witnesses on that.

Mr. **Packard**. In 1984, the CAB did make some rules that attempted, at least in the original effort, to prohibit bias in the CRS flight displays.

In your judgement, did we make progress in those rules? And are there still biases existing, and if so, where are those biases?

Mr. **Rezendes**. Well, in terms of actual screen biases, from what I understand, those have basically been eliminated. But there are still what they call the halo effect: the fact that a travel agent signed an agreement, let's say, with United Airlines to use the Apollo system.

In fact, they're more apt to book United flights. In fact, prior to 1984, I think the incremental revenues that they were receiving were 9 to 24 percent, even by the vendor's own statistics, after the 1984 ruling, after eliminating the bias, the incremental revenues were still in the 9 to 15 percent range.

Mr. **Noel**. If I might add a few things to that as well. There's been some concern—and I know that System one, which is the system owned by Texas Air, has filed a petition with DOT on this—that there are some lingering, what they call architectural, biases in the system.

An example of that would be if I'm trying to book a flight through, say, SABRE, to the PARS system, that the communications links don't work as effectively, and sometimes the agent can't get through to the competing system, which makes him more inclined to stay on the system that's owned by the vendor.

The Department has indicated that they're going to try to look at this a little bit

Mr. **Wells**. Another factor in that, in the halo effect, is that the vendors offer commission overrides to travel agents to encourage them to book more flights on that airline.

Now, strictly speaking, according to the CAB rules, it's illegal to offer commission overrides only to agents that use your CRS system.

However, the survey that Travel Weekly did earlier this year of travel agents indicated that 5 percent of the travel agents who switched systems in 1987 indicated that one of the reasons for switching systems was the belief—which presumably was based on an oral understanding that commissions from the airline that owned the CRS would increase as a result of switching CRS systems.

Mr. PACKARD. Thank you, Mr. Chairman.

Mr. MINETA. Mr. McCrindle, I'd like to have you make your comments or questions while you're here. I seated you to my right as being a Member of the Conservative Party that you are.

But I believe my colleague to my left, Mr. Gingrich, a conservative Republican, had some other thoughts on the issue, and I think that he'd like to say something.

Mr. GINGRICH. Well, now, I just want to welcome you here. We think it's a particularly fine time for you to come, given your expertise on this topic, and we look forward to hearing from you.

I just pointed out to Congressman Mineta that whichever element of the Tory party you might occasionally belong to, you are ours, and we're delighted to have you here, and that at some point in the distant future, we hope to give Norman a chance to experience what it's like to have a massive Tory majority in the Parliamentary body. [Laughter.]

I would look—I very much thank you for coming, and I hope that you'll spend just a few minutes with us, at the Chairman's discretion, sharing what you've learned in Britain looking at this topic, and your thoughts on this.

Mr. MINETA. Robert, please feel free to turn on your mike here and comment or ask questions.

Mr. MCCRINDLE. Well, first of all, perhaps I could thank you for that welcome.

But I have sufficient problems with British politics that I have no intention of becoming too involved in American politics. So, if I leave this room with you still wondering if I'm on the right wing or the left wing of the Conservative Party, I shall perhaps have achieved one of my objectives. [Laughter.]

Mr. MCCRINDLE. It's pretty obvious just listening to the exchanges this morning that the CRS dilemma—because such I think I would describe it as—has reached a more advanced stage in the United States than it has in Europe.

But that is not to say that it is no emerging in Europe. Problems which not only cause difficulties in the individual countries of Western Europe, particularly—they are going to create problems within the European Commission, because they are taking more than a passing interest in the competitive aspects of CRS.

But, of course, in the United States, it's quite clear that not only have you been living with the problem for a longer period, but that it's bound to be a bigger problem, in that you have a vast domestic airline system, whereas in a small country like mine, the amount of competition within the purely domestic system is minimal.

So, clearly the United States has a bigger problem, and is going to go on having a bigger problem.

If I may say so, one of the things that concerns me most is the matter which understandably has not been raised in the committee hearing this morning. That is the tension which I see being created between allies—between the United States and some of the countries of Western Europe, not least my own.

There is a matter to which I shall not refer specifically, but which I'm sure the Department of Transportation is fully aware.

Now, that means that it's not just—and I take no sides except to say that perhaps we are right. [Laughter.]

But I do feel that when you take account of the international ramifications as between the USA and other countries, and clearly the difficulties which have already been created in terms of the domestic airline situation in this country, we are in for a great period of difficulty.

I don't particularly want to ask questions so much as really to make an observation. It seems to me that we are on a no-win situation. With the benefit of hindsight, probably what we should all have done was to insist that the ownership of the CRS and the ownership of an airline should have remained absolutely separate.

There are those idealists who would still suggest to you that that is the solution in 1988. Being rather more pragmatic, because of course I'm a Conservative, I thought that perhaps I should just say that that seems to me to be perhaps an ideal solution in theory, but one which it would be extremely difficult now to create in practice.

Therefore, having eliminated the number one solution, if I may put that in quotation marks, I think you move down the line. Really, what we are now engaged in is damage limitation. And whether one of the solutions which we were enumerating a few moments ago is likely to be the one chosen, or whether there is another formula somewhere—what is perfectly clear is that there is no magic solution to the dilemma.

I must say, I find it, if I may be permitted to say so, Mr. Chairman, I find it a trifle ironic that in a country which has, as it were, been the father of deregulation in the aviation sphere, we are now listening to the possibility of Government intervention in another aspect of aviation.

This seems, if I may say so, to fly wholly in the face of the direction you were travelling some years ago, and the direction, may I remind you, you were urging all of us to travel, and you will notice perhaps recently that we have started listening to you.

I think that the only solution, again in quotations, that I would like to subscribe to, is the fact that we should take out some of the bias from the CRS. Now, there are a number of suggestions as to how that could be done. I don't think it would be for me this morning to particularize.

But I do think that if we eliminate the ideal solution, namely the separation of ownership, we then come down the line which says that perhaps the rate of return, perhaps what I call the debiasing of the system, together might begin to form a pattern which could ultimately be acceptable to the travel agencies on both sides of the Atlantic.

Conscious that that is very far from being a panacea. But I think, if I may say so in conclusion, Mr. Chairman, we've passed the period where panaceas would have had a chance of coming into operation. Now we're down to a practical level, and I think that it's in the interest of all of us, both in terms of your domestic legislation and ours, and the international relations and aviation between us, that we recognize that the one option we don't have is to do nothing.

Because then I believe you would find that all the great initiatives that you took in the field of deregulation some years ago, which are now being absorbed by the Europeans and others throughout the world, would really be contradicted. And that, I repeat, would be in the interests of no one.

So, I have no great solution to offer this morning, but just a few observations, which I hope you may even find helpful.

Mr. GINGRICH. Would you comment just one more second, if I might ask you?

I think you were putting your finger in something very important that we need to be very cautious about, if I heard you right. And that is that the—we need to find a way to maximize the opportunity for entry and exit and the opportunity for competition in the providing of computer reservation services, but I thought I was hearing you warn us against the perennial willingness of bureaucracies to re-regulate and suddenly take over this section of the aviation industry, having finally deregulated the physical section, if you will.

Is that a fair summary, that you would recommend us thinking in the direction of how do we increase the competition and the entry and exit possibilities in the computer reservation system, but you'd be a little cautious, or you would urge caution on the United States in establishing a more bureaucratic or a more regulated environment?

Mr. MCCRINDLE. I think I was talking philosophically at that point, rather more than practically.

But towards the end, I hope I made you realize that the practical solution is the one to which we are now forced to turn our attention.

But if I may just enlarge on the philosophical dilemma which I foresee, it is indeed, as you say, that having marched us out to the top of the hill of deregulation, there is just a suspicion, as I listen to these exchanges this morning, that we are being led back down again, in the interest, no doubt, of consumer protection, in the interest of some of your airlines, who are not involved in these systems, and so on.

I just think a little care has to be exercised. If I may say so—and it's in the shape of a compliment—the last Government in the world of which we expect too much intervention, too much bureaucracy, is the United States.

If they are leading us in that direction, then I think it could be a stony path. And I would urge you just to stop and take note, that in your understandable desire to find a solution to an intractable problem, you do not on the philosophical side recreate the type of situation from which some of us think you, and ultimately we, have escaped.

Mr. MINETA. You might have taken care of Secretary Pettit's testimony.

Let me now call on our good colleague, Mr. Boehlert.

Mr. BOEHLERT. Thank you, Mr. Chairman.

You know, as we look at the computer reservation system situation, I'm one who happens to think that the present situation is extremely dangerous, because of the very real potential adverse impact on the traveling public, travel agencies, carriers, just about everyone except the two principals involved.

Now, in my opening statement, I used the term oligopoly, and I noticed that our ranking members, Mr. Gingrich, used that same term.

Do you think that's fair, to use that term in describing the present situation?

Mr. REZENDES. I think it's probably a fair characterization.

Mr. BOEHLERT. Well, in view of that—and we're talking about possible unfair methods of competition and unreasonable industry concentration—do you think that maybe instead of turning to the Department of Transportation, we might be better advised to direct our energies toward the Department of Justice?

Mr. REZENDES. Well, the Department of Transportation is responsible for controlling unfair and deceptive practices and anticompetitiveness in the transportation industry, including the airline industry.

The authority would rest with them, and they have the authority right now to take action, not only after the fact, after it exists, but also before it exists, if the potential exists, they can control it.

Mr. BOEHLERT. You know the old story of the cabbie driving by one of the buildings here, and he looks up, and the passenger says, what does that inscription mean? "What is past is prologue"?

The cabbie says, "You ain't seen nothing yet." [Laughter.]

Now, when we talk about the Department of Transportation with respect to the computer reservation system, we ain't seen nothing yet. And I'm just wondering if we're ever going to see anything

Do us all a favor, if you will—try to put it in perspective. No pun intended, but to bring this discussion down to earth.

Why should anybody care? Why should the traveling public care if a couple of people have this oligopoly that we're talking about?

Mr. REZENDES. It would result, to the extent that it increases concentration in the airline industry, which it has, to some extent, to the extent that that happens, and those people who have the market power exercise that, it could result in deterioration of service and higher fares. It's very simple.

Mr. BOEHLERT. So, everyone has a stake?

Mr. REZENDES. That's absolutely correct.

In fact, one of the points that we'd like to emphasize is that although we recognize there are downsides to regulation and there are costs, there is also a great cost for not acting. We're paying the penalty today.

Mr. BOEHLERT. Well, how about the airlines that don't have a CRS system, or are not part of any consortium, that are getting involved.

Are they in danger of being financially destroyed?

Mr. REZENDES. Oh, it's quite possible.

In fact, some of the mergers that we've seen recently, we were told that one of the reasons—obviously, there are many reasons to merge—but one of them was to acquire stakes in CRS ownership.

That's a very attractive position to be into, and if you don't—many airlines told us that if you don't have a stake in a CRS ownership, you don't have a viable position in the market.

Mr. WELLS. Or even in cases where the merger did not result in a stake in CRS ownership, the merger helped the carrier acquire the necessary size to defend its market from other carriers who do have a stake in the CRS.

Mr. BOEHLERT. So, there's a great deal at stake. So I'm doing—and obviously you recognize the ploy, as so often we do in hearings of this nature. I know the answers of the question that I'm asking, but I want to get your reaction on the record, because this is very significant.

Mr. REZENDES. Oh, we agree.

Mr. BOEHLERT. The traveling public is impacted negatively, the carriers are, the smaller carriers are. I mean, there's a lot at stake here.

You've testified that CRS market power permits airlines to charge booking fees that exceed those that could reasonably be charged in a competitive market. You state that for the two major CRSS, booking fees are approximately double the cost of providing the service.

What do other CRS vendors charge, and why is 100 percent markup more than could be charged in a competitive market, in your view?

Mr. NOEL. Well, the fees are all roughly the same. They're all about $1.85.

The difference is in the cost of providing the booking.

Under DOT's cost allocation, where they distributed the costs between providing the booking and servicing the travel agent, they estimated that Apollo's is about $0.96 to provide the booking, and that SABRE's cost is about $0.79 to provide the booking.

The smaller carriers because they don't take advantage of these economies of scale, their costs are closer to the $1.85 level.

Mr. BOEHLERT. Okay.

Thank you, Mr. Chairman.

No further questions.

Mr. MINETA. Mr. Kolter?

Mr. KOLTER. Mr. Chairman, I have no questions at this time.

Mr. MINETA. Mr. Sundquist?

Mr. SUNDQUIST. Thank you, Mr. Chairman.

To what extent do you think the increase in the concentration in the airline industry over the past three years can be attributed to the anti-competitive effects of CRS?

Mr. REZENDES. That's a difficult question to answer.

Obviously, it's played a role. I don't think we could isolate specifically how big of a role it's played. There are other aspects, everything from mergers that existed, you can get into, try to get into the background as to why those mergers happened.

But there are a number of other barriers to entry as to why the market is being concentrated, besides just CRS's, although we think they've obviously played a role.

You can't quantify that, though.

Mr. SUNDQUIST. In your comments, in your conclusion, you said that you're not recommending any specific action.

Our distinguished colleague from Great Britain has said, ideally, I think what he said was, this is a separate industry.

Is that possible, and could that be one of your specific recommendations?

Mr. REZENDES. Well, as we say, we're not recommending anything.

But that is one of the options, not only divestiture, but also an industry consortium, where the industry would get together and agree on a common system that they all would use and all share in the profits of.

That's a possibility.

Mr. SUNDQUIST. If you're tracking this trend line, where are we headed on the basis of where we are today, and where we've been?

Where are we headed, and what's the natural conclusion as to where we'll be in five years or ten years?

Mr. REZENDES. I guess that's where our primary message is today, where our concern is.

We see booking fees that substantially exceed cost, we see incremental revenues, we see major transfers from the minor and nonvendor CRS's to the major airlines.

Our primary concern is that we see no moderating force. We don't see the marketplace changing. We don't see many new entrants, or the entrants who are already there able to get a bigger foothold in the market.

Nor do we see any technological changes down the road that will drastically impact this in a few years.

Mr. BOEHLERT. Thank you.

Thank you, Mr. Chairman.

Mr. MINETA. Is Mr. Stangeland coming back?

Let me ask, Mr. Rezendes, in its written answers to my questions, the Department of Transportation points out that the regulatory actions which had been proposed to deal with the CRS problem all involve costs of one kind or another.

You've had an opportunity to review the costs and problems which the DOT cites, and I've been wondering if those factors that the DOT points out change your opinion that it would be appropriate for the DOT to go forward on computer reservation system rulemaking.

Mr. REZENDES. We would agree with DOT that in fact there are costs and downsides to any of the remedies that we've discussed earlier.

In fact, as we also mentioned earlier, it's probably going to take multiple remedies to address the problem. But one of the key points I think we need to keep in mind here is that not only is there cost for action, there's cost for inaction.

As we mentioned earlier, we see substantial booking fees. We see substantial incremental revenues and transfers to the major carriers, and we don't see any moderating force. Inaction also has a price, and we need to consider that and weigh that in all the various options that we're considering.

Mr. MINETA. Some of the smaller, nonvendor air carriers have advanced a proposal to require some kind of a mechanical switch which would allow any subscriber to access any vendor.

I'm wondering has the GAO considered the potentiality of such a proposal to restore vendor competition for air carrier participants?

Mr. Rezendes. I assume you're talking about the Midway proposal.

Jack has talked to them, and is more familiar with their proposal.

Mr. Wells. We've looked at their proposal, but we have not studied it in detail.

We do have a couple of concerns about it.

One is that one element of the proposal is apparently that the booking fees charged to participating airlines would vary, which would be contrary to the current CAB rules, so that there would have to be some change in those rules.

Also the Midway proposal anticipates that each agent would have access to all five of the different CRS systems. There's some question on our part as to how readily an agent would be willing to switch from one system to another.

These systems require a fair amount of training, to become adept at their use, and it's not clear to us that agents would be willing to have so many systems in their offices at the same time, and to switch readily among them.

Mr. Packard. May I just ask one question?

Mr. Mineta. Surely, Mr. Packard.

Go ahead.

Mr. Packard. I was intrigued, Mr. Rezendes, by a comment you just made, with one of the other Members.

Some of the airlines that have now come in and have their own CRS programs, are still averaging about $1.85 per booking?

Mr. Rezendes. That's correct.

Mr. Packard. Whereas the two that have been in for a long time average $0.79 and ninety-something cents, as I recall the figures.

That's interesting, that even though they now have access to a system of their own, which I think back in 1983 and 1984 was what we were insisting. They not only have to work through the two existing, I think there were only the two existing at that time—and now we see where there are five systems in operation.

And yet, those new ones are still not able to compete with the old, existing systems.

Is that not the way our economy tends to work anyway? There's a good widget out there, then others come in and make it, and they have to pare their programs and operations down to compete with the originator of the system.

If Government puts a layer of regulation over all of this, does that not generally—historically—raise the cost more to, in this case the $1.85, and lock it into that, so that there is not the benefit to the consumer and no real benefit to the airlines who have access to a CRS program?

I'm not sure that we would improve it by regulating it, and maybe putting up inducements to spread the program out, as you've suggested, in preference to totally divesting it from the airline industry which might be a solution that could be worked out.

But are we not moving in the direction that normal, free enterprise tends to move us?

Mr. Rezendes. A couple of comments on that.

On the booking fee costs of the new vendors, the minor vendors, there are economies of scale.

Obviously United and American have been in the market for a long time, and they control 75 percent of the bookings, so you would expect that they would be more efficient and would be able to produce a booking at a lower per-booking cost than the minor vendors would.

But, in addition, we're not just talking booking fees. The airline vendors are making money from incremental revenues, which skew the travel agent's choice of flights. An airline vendor is more apt, where the airline has the dominant share of the market, also controls the dominant number of the travel agents in that market, to generate a higher percentage of booked flights than it does nationwide.

That portion of inequities could be corrected without changing the fundamental premise of letting the free marketplace handle the problem.

Mr. PACKARD. That's true.

There are a number of options.

Thank you, Mr. Chairman.

Mr. MINETA. Thank you very much, Mr. Packard.

Let me suggest, Mr. Wells, that you continue on that study of that system, and maybe at some point, let us know how that's coming along.

If there are no further questions, let me thank you very, very much, Mr. Rezendes, Mr. Noel, and Mr. Wells, for your appearance here this morning.

Mr. REZENDES. Thank you, sir.

[The prepared statement of Mr. Rezendes follows:]

United States General Accounting Office

GAO

Testimony

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Competition in the Airline Computerized Reservation System Industry

Statement of
Victor S. Rezendes, Associate Director
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Aviation
Committee on Public Works
and Transportation
House of Representatives

GAO/T-RCED-88-62

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to comment on the Department of Transportation's (DOT) recent report on the potential anticompetitive effects of airline-owned computerized reservation systems (CRSs), and on further actions which are needed in response to that report.[1] The development of CRSs has resulted in one of the most significant changes in the structure of the airline industry since it was deregulated in 1978.

Two years ago we reported on the potential anticompetitive effects of CRSs and recommended that DOT conduct a study of these effects and take action if warranted by the study's results.[2] DOT's recently completed study provided extensive information about the costs and profits of CRS systems, but did not draw conclusions concerning the potential anticompetitive effects of CRSs or about the need for further action. Based on the results of DOT's study we believe that

-- airline-owned CRSs earn profits exceeding those that could reasonably be expected to be earned in a competitive market and

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[1] U.S. Department of Transportation, Study of Airline Computer Reservation Systems (DOT-P-37-88-2, May 1988).

[2] Airline Competition: Impact of Computerized Reservation Systems (GAO/RCED-86-74, May 9, 1986).

-- these profits reduce competition in the air passenger market, because they artificially raise the costs of participating carriers.

We believe, based on these findings, that some remedy by DOT is warranted. Our testimony today discusses several potential remedies.

We reviewed the analyses that had been conducted previously on airline CRSs by the Civil Aeronautics Board (CAB) and by the Department of Justice. We discussed the issues raised by the DOT report with representatives of CRS vendors, other airlines, and travel agents, as well as with DOT staff. We also reviewed legal and economic issues concerning the appropriateness of various remedies.

BACKGROUND

Airlines first began developing internal computerized reservation systems in the 1950s and 1960s. By the mid-1970s, the possibility of developing a subscriber-oriented CRS had become apparent. In such a system, travel agents could communicate on-line to a central reservation computer and book their customers onto airline flights from video display terminals in their offices. After unsuccessful efforts by the airline industry to develop an industry-wide CRS, United Airlines and American Airlines developed their own systems. Within a few years, Delta Airlines, TWA, and Eastern Airlines had developed similar systems.

The five existing CRS systems are:

-- SABRE (owned by American Airlines), with a 43 percent nationwide share of CRS revenues;

-- Apollo (owned by a consortium of airlines, but principally by United Airlines), with a market share of 32 percent;

-- PARS (owned by TWA and Northwest Airlines), with a market share of 10 percent;

-- System One (owned by Texas Air Corp., which acquired Eastern Airlines and its system), with a market share of 10 percent; and

-- DATAS II (owned by Delta Airlines), with a market share of 5 percent.

The market shares for these systems vary greatly from city to city. In Atlanta, for example, where Delta has a hub, the market share of DATAS II is 22 percent. In Miami, where Eastern has a hub, System One has a share of 45 percent. In St. Louis, where TWA has a hub, PARS' share is 77 percent. In Denver, where United has a hub, Apollo's share is 76 percent. And in Dallas, where American has a hub, SABRE's share is 91 percent.

The proliferation of airline fares and service offerings after deregulation increased the importance of CRSs, because they made it much easier for a travel agent to review the available service offerings and find the offering best suited to the air passenger's needs. A CRS ranks the flights available and displays them on the agent's video terminal in terms of factors which are intended to reflect the desirability of each flight for the passenger. For example, nonstop flights are ranked higher than one-stop flights, direct flights are ranked higher than connecting flights, and flights leaving close to the passenger's desired departure time are ranked higher than less conveniently scheduled flights. In the past few years, most CRSs have been improved to provide the agent with more up-to-the-minute information on seat availability, and to allow the agent to receive immediate confirmation of booking for each seat selected.

The airline that owns a CRS (the CRS vendor) receives two major direct forms of revenue. First, every time a flight is booked, the CRS vendor receives a booking fee from the airline whose flight is selected. In 1986 these fees were most commonly $1.85 for each flight segment.[3] Second, the travel agent that uses a CRS pays a subscription fee to the CRS vendor. These fees are negotiated between the vendor and the agent, and in 1986, ranged from an average of $5,457 for PARS to $11,911 for Apollo. The travel agents in turn charge the airlines whose flights they book a commission for each flight booked. These commissions currently average 10.5 percent of the ticket price.

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[3] A flight segment is a flight, or a portion of a flight, which takes place on a single airplane. A flight in which the passenger changes planes once consists of two flight segments. Hence, a

The two major CRSs--SABRE and Apollo--each have shares of the CRS market which considerably exceed their owners' shares of the airline market.[4] Their owners therefore receive more in booking fees than they pay out. The airlines that own the three minor CRSs, whose shares of the CRS market are all smaller than their shares of the airline market, each pay out more in booking fees than they receive.

The airline that owns a CRS is also able to sell more airline tickets by virtue of its CRS ownership. These additional airline passenger revenues are called "incremental revenues." The source of these incremental revenues was quite apparent in the period prior to November 1984. During this period, airlines that owned a CRS typically biased the display of flights on the travel agents' video screens to give preference to their own flights. Travel

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flight from New York to Los Angeles for which the passenger changes planes in Chicago consists of two flight segments and would incur two booking fees of $1.85 each, or $3.70 altogether.

[4] While SABRE's CRS market share was 42 percent in 1986, American's airline market share was 14.5 percent. While Apollo's CRS market share was 32 percent, United's airline market share was 17.1 percent.

agents were more likely to book passengers on flights listed high in the display, so the airlines owning CRSs were able to sell more airline tickets and earn incremental revenues. In November 1984, a CAB rule became effective prohibiting biased displays of flight information. However, the DOT report finds that substantial incremental revenues continue to be received. DOT attributes these continuing incremental revenues to a "halo effect," that is, the positive effect on bookings of maintaining "ongoing, mutually supportive business relationships between a vendor and its travel agent subscribers."

The CAB rules have several other provisions. One provision sets a maximum term for the contract between the CRS vendor and the travel agent subscriber of 5 years. Another bars the CRS vendor from prohibiting its subscriber, "directly or indirectly," from using another vendor's system.

Since the CAB rules went into effect, the 5-year maximum specified by the CAB rules has become the industry standard. The two major CRSs have adopted "minimum use" clauses in their contracts which require the travel agent to use the vendor's system for bookings equal to 50 percent (for Apollo) or 75 percent (for SABRE) of the agent's bookings made during a base period at the beginning of the contract.

Another contract provision used by both major vendors is that, should the agent breach the contract prior to its 5-year expiration date, the agent shall be liable to the vendor for "liquidated damages." The contract specifies a formula for calculating these damages, which include all the revenues, including booking and subscription fees, that the vendor would have received over the contract's remaining life. The resulting liabilities are sufficiently great that most travel agents consider it too costly to escape from the contract significantly before its 5-year expiration.

GAO REPORT ON CRS

Two years ago, at your request, we reported on possible anticompetitive effects of CRSs. We focused our attention on two issues--incremental revenues, which could potentially weaken the ability of rival airlines to compete effectively, and booking fees, which if they exceeded costs could have significant anticompetitive effects when paid by one airline to a competing airline. We concluded that we did not have sufficient information at that time to determine whether incremental revenues continued to be received after the CAB's anti-screen-bias rule went into effect in late 1984. We also did not have sufficient information to determine whether booking fees significantly exceeded costs, though it was apparent that CRS vendors had sufficient market power to set booking fees above costs if they so chose.

Accordingly, we recommended that DOT, which is charged with the responsibility for protecting competition in the air transportation industry, study two issues--the size of persistent incremental revenues and the potential anticompetitive effects of booking fees, including their relation to booking costs. We recommended that DOT's study examine the likely impacts of possible remedies for the anticompetitive effects of booking fees, and that DOT take additional action, if warranted by the results of its study, to enforce compliance or to strengthen the CRS rules. You supported our recommendations and, at your request, DOT has now completed its study.

THE DOT REPORT

The DOT report finds that CRS-vendor airlines have continued to earn substantial incremental revenues even after the CAB's anti-screen bias rule took effect. The report also finds that the major CRS vendors charge booking fees well in excess of the costs of providing the bookings. As a result, about two-thirds of the nation's airline industry transfers substantial revenues--over half a billion dollars annually--to the two major CRS vendors. The DOT report also outlines a variety of provisions in the contracts between travel agents and CRS vendors which can unnecessarily restrict competition in the market for travel agent subscriptions.

Finally, the report examines the impact of new technological developments on the future competitive structure of the industry.

Are CRS Vendors Still Receiving Incremental Revenues?

Incremental revenues transfer income both from non-CRS-vendor airlines to CRS-vendor airlines and from minor-CRS-vendor airlines to major CRS vendors. These transfers limit competition in the airline industry by giving major-CRS-owning airlines an artificial competitive advantage. The DOT report estimates that, based on the CRS vendors' own analyses, incremental revenues continued after the CAB screen bias rule went into effect, and increased CRS-vendor airline revenues by 9 to 15 percent over what they would have been in the absence of CRS ownership. Moreover, these incremental revenues had declined only modestly from the 9- to 24-percent levels estimated by the CRS vendors before the CAB rule went into effect.

DOT also conducted its own analysis of incremental revenues, and estimated that, after the CAB rules went into effect, these revenues increased CRS-vendor airline revenues by 12 to 40 percent of what revenues would have been in the absence of CRS ownership. We believe these results indicate that airline-owned CRSs have continued to generate substantial incremental revenues even after the CAB rules were implemented.

Are CRS Vendors Charging Booking Fees That Significantly Exceed Costs?

Booking fees that significantly exceed costs create distortions in the airline marketplace by unnecessarily raising the costs of air travel. The DOT report estimates that, for the two major CRSs, booking fees ($1.85 average fee for Apollo; $1.84 for SABRE) were about double the cost of providing the booking ($0.96 for Apollo; $0.79 for SABRE), including the costs of capital and a provision for a reasonable profit (15 percent of invested capital). We believe that these results indicate that airline-owned CRSs are using their market power to charge booking fees that exceed those that could reasonably be charged in a competitive market.

As we indicated in our report 2 years ago, and as the Justice Department also emphasized in their 1985 report,[5] the level of booking fees is not determined in a competitive market. Competing airlines, who pay the booking fees, have little alternative to paying those fees if they wish to remain competitive in the air travel business. Declining to pay a particular CRS vendor's fee would substantially reduce the likelihood that travel agents subscribing to that CRS would book passengers on that airline.

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[5] 1985 Report of the Department of Justice to Congress on the Airline Computer Reservation System Industry (Dec. 20, 1985).

For example, in 1984, Continental Airlines declined to pay booking fees to PARS, one of the smaller CRSs, for 6 weeks. Continental believed that the decline in revenues was so great that it was forced to resume paying the fees.

One airline, Southwest Airlines, does not pay full booking fees. Its flights are listed on the CRS, but cannot be booked directly through the CRS. We believe that this strategy has succeeded only because Southwest is a "niche" carrier with an established market reputation, which provides a unique, low-cost service on routes not served by other carriers. An airline competing with other airlines in major routes, particularly a new entrant, could not use this strategy.

By contrast, the level of travel agent subscriptions, the other major source of CRS revenue, is determined in a more competitive market. A travel agent can choose to subscribe to a different CRS if it finds the subscription fee charged by one to be too high. CRS vendors still have significant market power even with respect to travel agents, but this power is more limited than their market power over competing airlines. This differential degree of market power is reflected in the fees charged by the CRS vendors. While DOT found the booking fees of the major CRSs to be about double their costs, travel agent subscriptions for all vendors were between 66 and 85 percent of costs.

Do Booking Fees and Incremental Revenues Cause Substantial Revenue Transfers Between Airlines?

Revenue transfers from non-CRS-vendor airlines to CRS vendors are caused both by booking fees which exceed costs and by incremental revenues. There are also net transfers from minor CRS-vendor airlines (whose booking fee outlays exceed their receipts) to the two major CRS vendors. These transfers, because they exceed the costs of the services provided, reduce competition in the industry by artificially imposing a cost penalty on some carriers and subsidizing others. Such transfers could force non-vendors or minor vendors to exit (or avoid entering) markets where they could otherwise have been competitive.

The DOT study does not report the size of these transfers for each airline paying booking fees. Our estimates, however, of the 1986 aggregate revenue transfers received by each CRS vendor from all airlines, based on DOT data, and including both excess booking fees (net of booking costs and normal profit) and incremental net revenues are

-- SABRE: $342.9 million
-- Apollo: $302.6 million
-- System One: $83.6 million
-- PARS: $67.3 million

-- DATAS II: $45.6 million

The data in the DOT report do not permit us to estimate the effect of these transfers in particular markets.

Do CRS Vendors Receive High Profits?

High booking fees and incremental revenues contribute to high profit rates for the major CRSs. The DOT report estimated that the internal rate of return for Apollo through 1986 was between 53 and 109 percent, depending on what percentage contribution incremental revenues make to airline earnings.[6] The range of returns for SABRE was 69 to 130 percent. The major CRS vendors believe that their profits are justified by the risks involved in developing CRSs. Based on our analysis, we do not agree. When the establishment of CRSs was being contemplated in the mid-1970s, only two airlines, United and American, had a sufficiently broad national route structure and a sufficiently large revenue base to make the unilateral development of a CRS for travel agent use worthwhile. We believe that the success of United and American in establishing profitable CRSs is due to the inherent advantages provided by the route structure awarded to them by the CAB. All the CRSs are projected by DOT to become increasingly profitable through 1992. This is not surprising in view of the captive relationship between CRS vendors and participating airlines, and the substantial economies of scale in the CRS market which forestall new entry.

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[6] We concluded that the percentage contribution of incremental revenues to airline earnings was likely to be between 40 and 80 percent. The range of rates of return given in the text reflects this conclusion. The basis of this conclusion is discussed in detail in our response to the fourth question posed by Chairman Mineta in his letter of August 11, 1988. DOT suggests that this percentage could be anywhere in the range of 5 to 80 percent, but we believe that it is likely that the true figure is in the upper half of this range.

Do Provisions in CRS Contracts Unnecessarily Restrict Competition?

Some contract provisions discourage travel agents from switching vendors, reduce competition in the market for servicing travel agents, and also perpetuate the revenue transfers to major CRS vendors cited above. These provisions include the 5-year length of the contract, minimum-use clauses, and liquidated damages clauses. Certain reported major-vendor practices, such as aggressively seeking to roll over contracts years before they expire (and hence beginning a new 5-year period during which the agent cannot change vendors), would exacerbate this problem.

These contract provisions particularly affect competition between major CRS vendors and minor vendors. By discouraging agents from switching vendors, they make it more difficult for the minor vendors to sign up enough travel agents to prevent a net outflow of booking fees to the major vendors. As a result, these provisions have a negative effect on the minor vendors' ability to compete in the airline market with the major vendors. By making the agents captive to a single system for extended periods of time, these provisions also deny the travel agent the opportunity to shop freely in the CRS market.

The DOT report summarizes these contract provisions and provides some data related to their competitive impact. The report notes that, of 24,693 travel agent subscribers, 1,107 switched systems in 1986. Between 1983 and 1986, SABRE's market share declined somewhat (from 49 to 43 percent), as did PARS', while shares for Apollo, System One, and DATAS II all increased.

The report suggests that longer contracts increase certainty and reduce risk. Travel agent representatives, however, have suggested that long-term contracts increase the risk to travel agents that an airline which dominates a city's airline markets when the contract is signed (thus making it an attractive CRS vendor, from the agent's viewpoint) will withdraw from that city in the course of the contract (as Eastern has recently done from Kansas City).

The DOT report also notes that one of the original justifications for the 5-year term permitted in the CAB rules was to allow agents to take full advantage of the investment tax credit. The investment tax credit was repealed in 1986.

The Future Competitive Structure of the CRS Market

DOT's projections of revenues for the CRS vendors show continued high levels of profit, with no expectation of reduced market power due to new entry.[7] DOT also assesses the possibility that technological developments could change the competitive structure of the CRS industry and finds it unlikely that any such changes will occur over the next 2 to 5 years. For example, while personal computers (PCs) are replacing "dumb terminals" in travel agents' offices, the enhancements they provide are unlikely to change the competitive structure of the industry. Simultaneous PC interface with several CRSs, which could significantly break down the vendors' market power, is technologically feasible, but the DOT report indicates that resistance from CRS vendors has prevented its introduction. Some automatic ticketing machines, which could bypass agents, have been installed, but the DOT report indicates that resistance from agents has slowed their use.

POLICY OPTIONS

DOT's report does not discuss a key issue which we recommended that they address, namely what action is appropriate in view of their analysis. We believe, in view of DOT's empirical results, and in view of the analyses conducted over the past 5 years by the CAB, the Justice Department, and GAO, that further action is now warranted to ensure that the benefits of airline deregulation are not nullified by the anticompetitive effects of airline ownership of CRSs.

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[7] Apollo's internal rate of return was projected by DOT to rise to a range of 58 to 110 percent by 1992, depending on the contribution of incremental revenues to airline earnings, while SABRE's rate of return was projected to rise to a range of 70 to 130 percent.

DOT has the statutory authority to prevent unfair or anticompetitive practices in air transportation, which might result in unreasonable market domination, monopoly power, and other conditions that would tend to allow one or more air carriers to increase prices or exclude competition. We believe that the Department's factual findings warrant DOT's taking additional action to remedy these anticompetitive problems. In the discussion that follows, we outline the major policy options we have been able to identify which we believe DOT should consider, and suggest some of the advantages and disadvantages of each. A more detailed discussion of these policy options can be found in the answers to the Chairman's questions, which we have provided to the Subcommittee separately.

We emphasize that there are several competitive problems in the CRS market, and no one remedy addresses all of them. In fact, a remedy for one problem may exacerbate another. Thus, multiple remedies may be needed.

The Problem of Revenue Transfers Between Airlines

The problem of revenue transfers between airlines can be addressed either by divestiture (requiring airline owners of CRSs to sell them to a non-airline owner) or by establishing an industry-wide airline consortium to operate a common industry system.

Divestiture

Divestiture would, by severing the link between an airline and a CRS, eliminate incremental revenues as well as revenue transfers from one airline to another. Divestiture would not address the problem of high booking fees, because an independent CRS owner would have much the same market power as a CRS-owning airline, and would be in much the same position to extract high booking fees from participating airlines. Divestiture also would not address the problem of travel agent contract terms which discourage switching from one vendor to another.

In the absence of regulatory restrictions, booking fees under divestiture could rise, since the new independent owner would no longer have the opportunity to earn incremental revenues from the airline business, and would therefore be more dependent on booking fee revenue. Without the potential for incremental revenues, the number of CRS vendors could also decline, increasing concentration.

Divestiture could also increase the cost of the overall airline reservation system, if CRS vendors decided to develop their own internal reservation systems in addition to the independent CRSs.

A Common Industry System

Ever since CRSs were first discussed in the late 1960s, there have been proposals to establish a common airline-owned nonprofit system for all travel agents and all airlines to use. These proposals have always failed because of disagreements between airlines on how to establish the system, and because of uncertainty about whether the system would enjoy antitrust immunity. It is apparent that such a system can only be established with government intervention, which would be necessary both to compel the existing systems to be consolidated and to provide assurance of antitrust immunity for the consolidation.

A common system would have many of the same advantages as divestiture. Since all airlines would jointly control the system, incremental revenues and inter-airline transfers would no longer be a problem. And since the system would operate on a nonprofit basis, high booking fees would also be eliminated.

The major objection to a common system is that there would be no rivalry between competing systems. Travel agents and vendors believe that rivalry between competing systems has led to technological improvements in the systems. Agents also feel that they get better service when systems are competing with one another. It is possible that some elements of competition could be incorporated into a common system. For example, independent hardware and software vendors might be able to supply individual travel agents with components of the system, as long as those components were certified as satisfying the specifications of the system.

Restrictions on Booking Fees

There are various ways to limit or reduce excessive booking fees; none of these would address the problem of incremental revenues. All of them, with varying degrees of success, address the problem of inter-airline revenue transfers due to high booking fees. None of them affects contract terms between vendors and agents. By forcing vendors to generate more of their revenues from agent subscription fees, these restrictions would put added pressure on agents to shop for the best financial deal from vendors. Agents would probably pass the cost of higher subscription fees back to the airlines in the form of higher commissions. However, since CRS vendors have less market power in setting subscription fees than they do in setting booking fees, it is likely that the increase in subscription fees would be less than the reduction in booking fees, so that non-vendor airlines (and most airline passengers) would be better off.

One approach to limiting these revenues to reasonable levels would be to prohibit booking fees entirely, thus forcing the CRS vendors to derive their revenues entirely from the travel agents rather than from the airlines with whom they compete.

Alternatively, instead of requiring that booking fees be reduced to zero, DOT could require that booking fees be reduced to a level approximately equal to the costs of providing the booking. This approach, while less drastic, has the disadvantage of involving DOT in a regular process of administrative price regulation--the sort of rate-setting process that the Congress sought to avoid by deregulating the airlines.

A third approach would be simply to cap booking fees at their present level. This would allow the vendors to continue to receive the booking fees which they now receive, but would not allow them to take further advantage of their market power in the future. This approach has the advantage of simplicity, but results in an arbitrarily chosen maximum booking fee.

Travel Agent Contract Terms

The market between the travel agents and the CRS vendors is more competitive than the market between the CRS vendors and the other airlines, but it is not as competitive as it could be. A travel agent can choose among five different CRS vendors, but the agent's effective freedom of choice is limited by several factors.

Contract Length

The standard contract in the industry is for 5 years, the maximum permitted by the DOT rules. Minimum-use clauses establish an expectation on the part of the vendor of receiving a stream of booking fees over the life of the contract. This expectation would form the basis of a damages suit if the agent breached the contract. Such provisions make it costly for an agent to consider breaking a contract significantly before the 5 years have expired. An agent in the middle of a 5-year contract, then, has little practical choice about which vendor to use, no matter how attractive a competing vendor's system might be. Any reduction in the maximum length of the contract would mitigate the effects of the other restrictive contract provisions, because an agent could escape from the restrictive contract more quickly and at a lower cost. The American Society of Travel Agents (ASTA) and the European Civil Aviation Conference (ECAC) have recommended reducing the maximum contract term to 3 years. The European Economic Community (EEC) is considering a proposal that agents be allowed to terminate contracts without penalty upon 3 months notice.

Minimum-Use Clauses

Elimination of minimum-use clauses could make it easier for agents to switch vendors. Minimum-use clauses require the agent to make a certain minimum number of bookings on the vendor's equipment. They also create an expectation of a stream of income, in the form of booking fees, from the participating airlines to the vendor. The agent, through the minimum-use clause, guarantees the vendor a minimum level of income from the agent's use of the system. Thus, if the agent breaches the contract, the minimum-use clause causes the agent to become liable for damages that include not only the lease payments, but also the income the vendor would have received from booking fees.

The amount of these damages may discourage the agent from switching systems. In the absence of a minimum-use clause, agents could reduce their use of one system (while continuing to pay subscription fees) and begin using a second system. It is not clear how effective the elimination of minimum-use clauses would be, since it is not certain how many agents would be prepared to have two sets of equipment in their offices.

Liquidated Damages

Travel agents have been particularly concerned about the burden of liquidated damages clauses. These clauses represent an agreement at the time the contract is signed regarding the damages that will be paid in the event the contract is breached. In CRS contracts these clauses generally require the agent to pay a lump sum representing the stream of booking fees anticipated by the contract's minimum-use clause. They also require the agent to pay the vendor 80 to 100 percent of the remaining subscription fees owed, and in some cases any special bonuses paid to induce the agent to sign the contract.

DOT could regulate the provisions of liquidated damages clauses. For example, booking fee revenues, which are generally the largest element in the liquidated damages formulae, could be excluded as a permissible form of damages. DOT could also, as ASTA has proposed, prohibit liquidated damages provisions in the contract, on the presumption that damages assessed by a court would be less burdensome than those specified by current contracts. However, booking fees would still be included in court-awarded damages unless, as ASTA also proposed, minimum-use clauses were prohibited.

CONCLUSION

We are not prepared today to recommend specific action, but, based on the results of DOT's study, we believe the time has come for the Department to review and adopt appropriate remedies for the anticompetitive features of the CRS industry. DOT has a statutory responsibility to protect competition in the airline industry. The airline industry has experienced an increase in concentration over the past three years which may threaten the improvements in fares and service quality that have resulted from deregulation. Several of the airlines we spoke with said that no airline can survive without an ownership stake in a CRS. If existing non-vendor airlines are forced out of the market, and if others are denied entry, competition in the airline industry will deteriorate, fares will rise, and service will suffer. As a result, it is important to take advantage of whatever opportunities exist to enhance competition in the industry.

Mr. Chairman, that concludes my statement. I would be happy to answer any questions you might have.

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GAO
United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

September 13, 1988

The Honorable Norman Y. Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works
and Transportation
House of Representatives

Dear Mr. Chairman:

On August 11, 1988, you asked that we testify before your Subcommittee on the Department of Transportation's recent study on airline computerized reservation systems (CRS). In your request for testimony you asked us to respond in writing to seven questions. Our responses are enclosed.

As our responses indicate, we believe that DOT's report is an excellent piece of analysis that provides important information about the extent of incremental revenues in the CRS industry and the amount by which booking fees exceed costs. While we recognize that there are some valid criticisms that can be made about some aspects of DOT's methodology, we do not believe that these criticisms obviate the report's overall findings--that competitive problems persist in the CRS industry. We believe that DOT needs to consider and adopt an approach to address these problems. In response to your questions, we have identified alternative approaches to address these problems and have reviewed the advantages and disadvantages of these options.

We look forward to testifying. If you should have any questions about our position, please contact me at 366-1743.

Sincerely yours,

Victor S. Rezendes
Associate Director

Enclosure

RESPONSES TO QUESTIONS FROM THE CHAIRMAN
SUBCOMMITTEE ON AVIATION
HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

1. Q: Do you believe that the 1988 DOT Report is an adequate response to your questions about incremental revenues and booking fees?

A: Our 1986 report raised three key issues: (1) the extent of incremental revenues, (2) whether booking fees significantly exceed costs, and (3) whether further action is needed. The DOT report addresses only the first two of these issues. While valid criticisms have been made of the DOT report (which we shall discuss in more detail in our responses to subsequent questions), we believe that the report is, on the whole, an excellent piece of analysis, and represents an adequate response to our first two questions on incremental revenues and booking fees.

2. Q: On the basis of what appears in the DOT Report is there any sound reason why DOT should not have made an affirmative recommendation for action to stem the revenue transfers from the rest of the industry to the dominant CRS vendors?

A: Since DOT is the agency responsible for taking action, the appropriate forum in which DOT would recommend action is in a notice of proposed rulemaking. We believe that there is sufficient evidence in the DOT report to indicate that a problem exists and that a rulemaking should be opened.

3a. Q: Please furnish the Committee with GAO's best halo estimate of the net revenue transfer (booking fees and halo revenue) to AA/UA [American Airlines/United Airlines] from the rest of the industry based upon DOT's May 1988 CRS report.

1. **For the period prior to November, 1984.**
2. **For the period subsequent to November, 1984, through December 31, 1987.**

A: There are insufficient data in the DOT report to answer this question exactly as asked. No data are available in the report for 1987. Also, the data for other years are annual, rather than monthly, so it is not possible, for 1984, to distinguish between the period prior to November and the period subsequent to November. The report contains data on the receipts of American Airlines and United Airlines from other carriers (including each other), but does not indicate booking fees paid by American and United to each other or to other vendors. It is therefore not possible to determine the receipts of American and

United net of their booking fee payments to other vendors. Nor is it possible, for example, to determine the gross revenues received by American from carriers other than United. Also, the net revenue transfer from booking fees (i.e., net of booking costs) can only be calculated for 1986, because it is only for that year that DOT calculates booking costs. As shown in Table I.1, we can present data from the report on the net booking fee and incremental revenues received by each vendor from all other airlines in 1986. Net booking fees are net of the cost of providing the booking, assuming DOT's "most likely" cost allocation, and including in booking costs a reasonable profit. Net incremental revenues are assumed to be 80 percent of gross incremental revenues.

Table I.1: CRS Net Revenue Transfer, 1986

Vendor	Revenue transfer (millions)
SABRE	$342.9
Apollo	302.6
System One	83.6
PARS	67.3
DATAS II	45.6

3b. Q: Do you believe that revenue transfers of this magnitude would have any effect on airline competition

1. **on scheduling,**
2. **on fares,**
3. **on equipment decisions, or**
4. **on decisions on cities and markets to be served?**

A: We believe that transfers of this magnitude would be likely to affect all these elements of airline competition. The size of the effect would depend on how large the transfer was in individual markets. If one carrier's costs are raised relative to its competitor's, this would affect its decisions on whether to enter a particular market, on how many flights to schedule in that market, on what fares it could afford to charge in that market, and on the capacity of the equipment it would use in that market.

3c. Q: Given the magnitude of those revenue transfers, what role do you believe that CRS ownership plays in the post-CAB sunset wave of airline mergers?

A: We are uncertain how significant this role was. Two of the carriers involved in the merger wave, Texas Air and Northwest, have cited their lack of ownership of a CRS as a factor in their decisions to merge with (respectively) Eastern and Republic. Texas Air acquired a CRS through its acquisition of Eastern, and Northwest acquired what it viewed as the necessary size to defend itself from the market power of CRS owners. The desire to acquire an ownership share in a CRS appears to be a strong one, as all the major domestic airlines except Pan Am have now either acquired such a share or been acquired by an airline with such a share.

3d. Q: Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

A: It seems likely, based on the data presented in the DOT report on the size of revenue transfers, and on our analysis of the likely competitive effects of these transfers, that the market power of CRS vendors does inhibit new entry and threaten the ability of new entrants to survive. The size of this impact is uncertain. We are currently undertaking further analysis of this question at the request of Chairman Rodino of the House Judiciary Committee.

3e. Q: If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal or proposals, if any, would you regard as most effective and appropriate for consideration by DOT?

A: We are not prepared at this time to recommend any particular remedy for the anticompetitive problems of the CRS market. We are prepared, however, to review the advantages and disadvantages of the different remedy options to assist in your consideration of them.

There are four major competitive problems that have been identified in the CRS market:

1. Booking fees that significantly exceed costs, which create distortions in the airline marketplace by raising the costs of air travel above the true cost.

2. Incremental revenues, which transfer revenues from non-CRS vendor airlines to CRS vendor airlines, and which limit competition in the airline industry by giving CRS-owning airlines an artificial competitive advantage.

3. Revenue transfers from non-CRS-owning airlines to CRS vendors caused both by booking fees which exceed costs and incremental revenues. These transfers also occur, to a lesser extent, from minor CRS vendor airlines, whose booking fee outlays exceed their booking fee revenues, to the two major vendors. To the extent that they exceed the costs of the services provided, these transfers reduce competition in the industry by artificially imposing a cost penalty on some carriers and subsidizing others.

Such transfers could force non-vendors or minor vendors to exit (or avoid entering) markets where they could otherwise have been competitive.

4. Contract provisions that discourage travel agents from switching vendors. Such provisions directly reduce competition in the market for servicing travel agents, and also perpetuate the revenue transfers to major CRS vendors cited above, by making it more difficult for minor CRS vendors to sign up enough travel agents to prevent a net outlay of booking fees to the major vendors.

We emphasize that there are several competitive problems in the CRS market, and no one remedy addresses all of them. In fact, a remedy for one problem may exacerbate another. Thus, multiple remedies may be needed. The following discusses the complex issues involved.

THE PROBLEM OF REVENUE TRANSFERS BETWEEN AIRLINES

The problem of revenue transfers between airlines can be addressed either by divestiture (requiring airline owners of CRSs to sell them to a non-airline owner) or by establishing an industry-wide airline consortium to operate a common industry system.

Divestiture

Divestiture would, by severing the link between an airline and a CRS, eliminate incremental revenues as well as transfers from one airline to another. Divestiture would not address the problem of high booking fees, because an independent CRS owner would have much the same market power as a CRS-owning airline and would be able to extract high booking fees from non-CRS-owning airlines. Divestiture also would not address the problem of travel agent contract terms which discourage switching from one vendor to another.

Divestiture could have the effect of raising booking fees. Since the owner would no longer have the opportunity to earn incremental revenues from the airline business, the owner might decide to increase booking fees to compensate for the shortfall. Without the potential for incremental revenues, the number of CRSs could also be reduced, increasing the CRS market's concentration. This could injure competition, and in particular might slow down the rate of technological progress in the industry, which some observers attribute to vigorous technical rivalry between vendors. On the other hand, a reduction in the number of CRSs in use might reduce costs because of the economies of scale in operating a system.

Divestiture would probably lead to the development of separate internal reservation systems by the major CRS-owning airlines. The airlines that own CRSs do not maintain separate internal reservation systems; the CRS is their internal reservation system. If they were required to divest themselves of the CRS (and hence of their internal reservation system as well), they would probably feel forced to develop a new internal reservation system to replace the CRS. While some small airlines do not have any internal reservation system, we believe it is unlikely that any major airline would tolerate the loss of control inherent in having its reservation system totally in the control of an outside firm.

Developing a new internal reservation system would certainly increase the overall cost of the airline reservation system because it would involve some duplication. It might also inhibit the transfer of data from the airlines to the CRSs. Currently, the airline which owns a CRS has its data on flight schedules and seat availability automatically loaded into the CRS. If the CRS were separately owned, the data would have to be transmitted to the CRS and separately loaded. Some CRS vendors believe that this would reduce the timeliness and quality of the data in the CRS.

A Common Industry System

Ever since CRSs were first discussed in the late 1960s, there have been proposals to establish a common airline-owned nonprofit system for all travel agents and all airlines to use. These proposals have always failed because of disagreements between airlines on how to establish the system, and because of uncertainty about whether the system would enjoy antitrust immunity. It is apparent that such a system can only be established with government intervention, which is necessary both to compel the existing systems to be consolidated into a common system and to provide the assurance of antitrust immunity for the consolidation.

A common system would have many of the same advantages as divestiture. Since all airlines would jointly control the system, incremental revenues and inter-airline transfers would no longer be a problem. And since the system would operate on a nonprofit basis, high booking fees would also be eliminated.

The major objection to a common system is that there would be no rivalry between competing systems. Travel agents and vendors believe that rivalry between competing systems has led to technological improvements in the systems. Agents also feel that they get better service when systems are competing with one another. It is possible that some elements of competition could be incorporated into a common system. For example, independent hardware and software vendors might be able to supply individual travel agents with components of the system, as long as those components were certified as satisfying the specifications of the system.

RESTRICTIONS ON BOOKING FEES

There are various ways in which booking fees could be limited. All have the effect of limiting or reducing high booking fees, and all, with varying degrees of success, address the problem of inter-airline revenue transfers due to high booking fees. None of them addresses the problem of incremental revenues, and none affects contract terms between vendors and agents. By forcing vendors to generate more of their revenues from agent subscription fees, all of these restrictions on booking fees would put added pressure on agents to shop for the best financial deal from vendors. Agents would probably pass the cost of higher subscription fees back to the airlines in the form of higher commissions on ticket sales. However, since CRS vendors have less market power in setting subscription fees than in setting booking fees, it is likely that the increase in subscription fees would be less than the reduction in booking fees, so that non-vendor airlines (and most airline passengers) would be better off. This would be particularly true if contract terms between the vendors and the travel agents were restricted to give the agents more bargaining power over the vendors.

One approach to limiting these revenues to reasonable levels would be to prohibit booking fees entirely, thus forcing the CRS vendors to derive their revenues entirely from the travel agents rather than from the airlines with whom they compete.

Alternatively, instead of requiring that booking fees be reduced to zero, DOT could require that booking fees be reduced to a level approximately equal to the costs of providing the booking, as estimated in DOT's recent report. Under DOT's most likely allocation of joint costs, it estimated that booking costs varied from $0.75 to $1.74. Under this approach then, booking fees would be reduced from $1.85 to a level somewhere in this range. This approach is less drastic than cutting booking fees to zero.

The disadvantage of this approach is that it requires administrative price regulation, which would involve a process of allocating costs between servicing travel agents and making bookings, estimating booking costs and travel agent service costs, and holding hearings to consider requests for fee increases. This, of course, is just the sort of rate-setting process that the Congress sought to avoid by deregulating the airlines.

A third approach would be simply to cap booking fees at their present level. This would allow the vendors to continue to receive the high booking fees which they now receive, but would not allow them to take further advantage of their market power in the future. This approach has the advantage of simplicity, but results in an arbitrarily chosen maximum booking fee.

RESTRICTIONS ON COMPETITION IN THE TRAVEL AGENT SUBSCRIPTION MARKET

The market between the travel agents and the CRS vendors is more competitive than the market between the CRS vendors and the other airlines. A travel agent can choose between five different CRS vendors, but the agent's effective freedom of choice is limited by several factors.

Contract Length

First, the standard contract in the industry is for 5 years, the maximum permitted by the DOT rules. Minimum use clauses establish an expectation on the part of the vendor of receiving a stream of booking fees over the life of the contract. This expectation would form the basis of a damages suit if the agent breached the contract. Such provisions make it costly for an agent to break a contract significantly before the 5 years have expired. Some CRS vendors have offered to compensate agents for the cost of breaking these contracts, but the great expense of paying the resulting damages makes it unlikely that competing CRS vendors will make such offers except in selected markets. In the absence of such an offer, an agent in the middle of a 5-year contract, then, has little practical choice about which vendor to use, no matter how attractive a system a competing vendor might offer.

The American Society of Travel Agents (ASTA), as well as the smaller CRS vendors, argue that there is no business necessity for contracts to be as long as 5 years. The CAB originally allowed contracts of up to 5 years to allow agents to obtain the full benefit of investment tax credits. Since the CAB rulemaking in 1984, however, the investment tax credit has been repealed. The two largest CRS vendors argue that the vendor must have a 5-year contract to amortize equipment, installation, and training costs. However, they do not indicate why equipment must be amortized over the life of a single contract. Such equipment could conceivably be pulled from one travel agent's office at the end of a short-term contract and re-used in another's. Installation and training costs can be charged to the agent separately, giving the agent an incentive not to change vendors frequently. Vendors also state that they need long contracts to generate sufficient revenues from their agents because the subscription fees they charge the agents are so low. Vendors could compensate for shorter contracts by charging higher prices to agents.

One option, then, would be for DOT to amend its rules to reduce the maximum length of a travel agent's CRS subscription contract to a shorter period. ASTA has suggested reducing the maximum contract to 3 years. ASTA noted that, prior to the issuance of the CAB rule in 1984, the standard contract was for 7 years. The CAB rule reduced that term by 2 years, and ASTA suggests that a further 2-year reduction would now be appropriate. ASTA does not, however, offer any specific rationale for a 3-year term. The European Civil Aviation Conference (ECAC) has also recommended 3 years to its member states as the maximum contract term for CRSs in Europe. A separate proposal by the European Economic Community (EEC) would allow an agent to terminate a contract without penalty on 3 months notice.

Minimum-Use Clauses

One factor which could reduce the level of market power exercised by airline-owning CRSs over travel agents would be the prohibition of minimum-use clauses. SABRE and Apollo both have "minimum use" clauses in their contracts which require the agent to make at least 50 percent (or, in the case of SABRE, 75 percent) of its bookings on that CRS (based on bookings during the first 6 to 12 months of the contract). These clauses are intended to guarantee to the vendors a stream of income from the airlines in the form of booking fees. The agent is not responsible for payments of the booking fees during the contract's life. However, if the agent breaches the contract, he or she is responsible for the booking fees that the vendor would have received. Thus, the minimum-use clause causes the agent to become liable for damages that include not only the lost lease payments, but lost booking fees as well. In the absence of a minimum-use clause, agents could reduce their use of one system (while continuing to pay the subscription fee for the remainder of the contract term) and start using a second system. This would allow the agent to switch systems without incurring damages. It is not certain how effective the elimination of minimum-use clauses would be, since it is not clear how many agents would be prepared to have two sets of equipment in their offices.

Liquidated Damages

Travel agents have also been concerned about the burden of liquidated damages clauses. These clauses represent an agreement at the time the contract is signed regarding the damages that will be paid in the event the contract is breached. In CRS contracts these clauses generally require the agent to pay to the vendor a lump sum representing the stream of booking fees anticipated by the contract's minimum-use clause. They also require the agent to pay 80 to 100 percent of the remaining subscription fees owed on the contract, and in some cases any special bonuses paid to induce the agent to sign the contract. The heavy damages stipulated by these liquidated damages clauses could probably be imposed even if the clauses were not in the contract, because the lengthy contract term and the minimum-use clause in the contract create an expectation on the part of the vendor of a stream of revenues from the participating airlines. In the one case decided so far, the court upheld the reasonableness of damages based on this expected stream of income. Elimination of the liquidated damages clause would therefore have little effect on damages unless the contract term or minimum-use clause were modified as well.

One option would be for DOT to regulate the provisions of liquidated damages clauses. For example, booking fee revenues, which are generally the largest element in the liquidated damages formulae, could be excluded as a permissible form of damages. DOT could also, as ASTA has proposed, prohibit liquidated damages clauses in the contract. ASTA acknowledges that, under existing contract law, the CRS vendor is entitled to some damages if the contract is broken. They believe, however, that the existing provisions are excessively favorable to the vendor, and that the agent has insufficient bargaining power to resist these provisions. They therefore believe the damages should be determined by a court if the contract is broken. As noted above, however, this prohibition would only have a significant impact on reducing damages if it were combined (as ASTA has proposed) with a reduction in the maximum contract term and/or in the minimum use of the system that could be required.

Remaining Competitive Problems

Even with shorter contract periods, mitigation of liquidated damages clauses, and elimination of minimum-use clauses, CRS vendors would still have significant market power over travel agents. In our conversations with travel agents, we have found several ways in which airlines use their market power as carriers to enhance their market power as CRS vendors.

The development of the hub-and-spoke system has given air carriers substantial market power in particular metropolitan areas. In some metropolitan areas, a single carrier provides 80 percent of the enplanements, and it is common to have a single carrier with over half of the enplanements. Travel agents have told us that carriers who dominate hubs use their market power to pressure travel agents into subscribing to their CRS. Carriers provide a number of free discretionary services to travel agents, such as free tickets, free use of VIP lounges, and the service of "breaking seats" (that is, making seats available to a favored customer even after the flight is fully booked). These services are most valuable when provided by the dominant carrier in the metropolitan area served by a particular agent. An agent who is refused these services because of an unwillingness to subscribe to the dominant carrier's CRS may not be able to compete for passengers. It would probably be difficult to end all these vestiges of market power in the relationship between the carrier and the travel agent.

3f. Q: What is your position on whether minimum-use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

A: We believe that minimum-use clauses certainly discourage use of a second system. We do not believe that they absolutely preclude such use. Minimum-use clauses generally specify a base period, such as the first 6 months of the contract, and require that the travel agent maintain a level of bookings equal to a stated percentage of the bookings during the base period. Apollo requires that bookings be 50 percent of base period bookings; SABRE requires 75 percent. Such a requirement becomes less burdensome as the agent grows in size. However, the reduction in the burden could be small if the vendor succeeds in signing up the agent for a new contract well before the old one has expired. In general, then, the faster an agent grows, and the more the agent resists signing a new contract before the old one has expired, the more likely the effects of the minimum-use clause are to be mitigated. However, if the agent is growing rapidly, he will probably need new CRS equipment. The new equipment will come with new 5-year contracts, and the agent may be pressured by the vendor to sign new contracts for the old equipment as well. With the new 5-year contract comes a new base period with a higher level of bookings required.

4. Q: The DOT Report in evaluating the extent to which incremental revenues may be taken into account as monopoly rents suggests a need to consider costs incurred by the vendor in carrying that traffic. On the other hand, other carriers from which the traffic is being diverted argue that the vendors' cost of carriage is irrelevant; the traffic is being taken from them and they are losing all the revenue with very little opportunity to save capacity costs. In fact, they argue that were they to reduce capacity, it would exacerbate their traffic losses. May we have GAO's view on proper resolution of these issues?

A: As the DOT report indicates, incremental revenues caused by the diversion of passengers from other airlines to the CRS vendor airline only result in increased profits for the CRS vendor to the extent that costs rise by less than the increase in revenues. DOT points out that, for any given flight, the airlines assume that an extra passenger carried raises costs by only about 20 percent of the increase in revenues. This is the cost for food service, ticketing, baggage claims, etc., which vary directly with the number of passengers. Hence, 80 percent of that incremental gross revenue would become incremental net revenue (profit). This assumes, however, that the airplane is not full. If diversion of passengers increasingly causes an airline to fill its flights early, it is likely to respond either by raising its prices or by expanding capacity.

The airline would most likely raise its prices not by an actual fare increase, but by reducing the proportion of discount seats available on each flight. This would cause the average fare (or the "yield") to rise, without any individual fare rising. The capacity increase could take place either by using larger airplanes for the same number of flights, or by increasing the number of flights. Using a larger airplane would raise total costs; however, since the larger airplane would have lower costs per seat than the smaller airplane, the extra seats would be added at a lower cost per seat than the existing seats. Adding additional flights would also raise costs; however, by providing more convenient service, it would probably generate additional revenues as well.

Data on load factors of various airlines suggest that CRS vendors may have somewhat higher load factors than non-vendors, but that the percentage difference in load factor is less than the percentage increase in incremental revenues estimated either by the vendors themselves or by DOT. One study suggests that CRS vendors also have higher yields than non-CRS vendors. It therefore seems likely that CRS vendors respond to the increased traffic levels associated with incremental revenues partly by achieving higher load factors on their airplanes, partly by adding more flights and substituting larger planes, and partly by raising average fares. To the extent that the CRS vendor achieves higher load factors on existing flights, the increase in net revenues would tend to be about 80 percent of the increase in gross revenues. To the extent that the CRS vendor substituted larger planes or added additional flights, net revenues would be less than 80 percent, but more than the 0- to 5.6-percent average profit margin cited by DOT. To the extent that the incremental revenues were converted into higher yields as a result of cutting back on the availability of discount seats, and depending upon the elasticity of demand, the increased demand could be converted into increased revenue while still keeping the number of passengers flown (and hence costs) static. This could conceivably allow incremental net revenues in some cases to be 100 percent of gross revenues.

On the whole, then, given the variety of options available to the CRS vendor (and assuming that the vendor chooses the most profitable of these options), it seems likely that the proportion of net incremental revenues to gross incremental revenues is likely to be closer to 80 percent than 5.6 percent.

5. Q: Does GAO have any views on DOT's costing methodology for ascertaining the proper allocation of joint costs among the vendors own services, other carriers, and subscribers?

A: We believe that DOT's cost allocation methodology is reasonable. To the extent that we disagree, we would probably allocate more of the costs to subscriber services than DOT does in its "most likely" allocation.

DOT allocates all of CRS product development and central computer operations to reservation services, which are expected to be supported by booking fees paid by competing airlines. Much of product development expenses are associated with providing new services, such as direct access, total access, multi-access, etc., that are greatly in demand by travel agents. It therefore seems appropriate that a substantial portion of these costs be allocated to subscriber services. Similarly, central computer operations serve both airline participants and agent subscribers; there seems to be no clear rationale for allocating all these costs to reservation services.

DOT also allocates all "subscriber conversion, retention, and system use incentives" costs to reservation services. This appears inappropriate. These costs are designed to convert a travel agent from the use of one CRS to the use of another, or to keep an agent from switching to another CRS. The typical participating non-vendor airline doesn't care what CRS its flights are booked on, since it participates in all CRSs and pays equivalent booking fees to all. From the participating airline's point of view, then, expenditures to convert or retain agents are a waste of money. The participating airline has an interest in expanding the network of computerized travel agents, but not in reshuffling those that are already automated. Since these costs largely take the form of payments made to travel agents, it seems appropriate that these costs should be allocated to subscriber services. If these changes in the cost allocation assumptions were made, booking fees as a percentage of booking costs would rise from 192 percent to 294 percent for Apollo and from 233 percent to 383 percent for SABRE.

6. Q: Does GAO have any views on DOT's methodology for determining halo incremental revenues?

A: In general, we thought DOT's methodology was sound. We have discussed the Department's methodology with CRS vendors and ASTA. Some of those we talked with suggested alternative specifications for the model, or alternative data specifications. In most cases, while a case can be made for an alternative specification of the model, the specification chosen by DOT does not result in any apparent bias in the estimates, so we have no reason to believe that a change in the specification of the model would change the results.

However, there are a few exceptions. DOT used "departures" as a proxy for the expected revenues of an airline in the absence of any bias due to being a CRS vendor. Representatives of SABRE have pointed out that a carrier like American, which owns SABRE, tends to have larger airplanes and fly them over longer routes than do smaller non-vendor airlines. As a result, American would tend to generate higher revenues per departure than a smaller airline, irrespective of any incremental revenues generated by being a CRS vendor. By using departures, the DOT methodology probably tends to overstate the size of American's incremental revenues. Data on available seat miles, if available, might be better, though the long-haul, high-density routes served by major carriers may generate lower revenues per available seat mile than routes served by smaller carriers.

SABRE representatives also state that the data source DOT used for revenues (so-called "plated" revenues) overstates the revenues of large carriers like American. Plated revenues include revenues which are owed to another carrier which participates in an interline connecting flight. We agree with the validity of this point, but the resulting bias is likely to be small, because it results only when there are interline connecting flights, which are a small and declining portion of the airline market. In any case, there are no data sources available other than plated data, so DOT had no choice but to use these data.

In any case, it should be observed that these criticisms apply only to DOT's own econometric analysis of halo incremental revenues. DOT did not use its own estimates in calculating the profitability of CRSs. It used the CRS vendors' estimates of the size of incremental revenues. The vendors' own estimates were generally smaller than DOT's estimates, but were still large enough to produce the high estimates of internal rates of return calculated by DOT.

7. Q: Are there any other comments on the DOT Report, or the CRS issues which GAO cares to make?

A: Our additional comments can be found in our testimony.

Mr. **Mineta**. At this time, we're pleased to call forward the Honorable Robert L. Pettit, the Associate Deputy Secretary of the Department of Transportation.

And he is being accompanied by Mr. Larry Phillips, Chief of the Industry, Economics and Finance Division;

Mr. Bob Young, of the Office of Litigation;

And Mr. Don Pickrell, Senior Economist, Transportation Systems Center.

Mr. Secretary, your statement will be made a part of the record, so please proceed.

TESTIMONY OF HON. ROBERT L. PETTIT, ASSOCIATE DEPUTY SECRETARY OF THE DEPARTMENT OF TRANSPORTATION, ACCOMPANIED BY LARRY PHILLIPS, CHIEF, INDUSTRY ECONOMICS AND FINANCE DIVISION, BOB YOUNG, OFFICE OF LITIGATION, AND DON PICKRELL, SENIOR ECONOMIST, TRANSPORTATION SYSTEMS CENTER

Mr. **Pettit**. Fine.

Thank you very much, Mr. Chairman.

I will, with the Chair's permission, submit my prepared statement for the record, and summarize and try to hit the highlights.

As you mentioned, there are three gentlemen with me who had a great deal to do with drafting this CRS study that is the subject of this hearing, and they will be available with me to answer any questions that the Committee might have.

One thing that is clear, I think, from this morning's statements, is that everyone recognizes the tremendous importance of CRS systems. To the airline industry and to the traveling public, CRS has become the most efficient system we have so far, to keep track of rapidly changing fares and the information that's made available to the traveling public by travel agents.

In that sense, it's brought a great number of benefits to the airlines, to travel agents, and to the traveling public.

CRS vendors, as we know, and as has been discussed here this morning, participate in two basic markets. In one market, they provide reservation services for the airlines and hotels and car rental companies, and the like. And in the other market, the vendors provide equipment and training and support services to travel agents and other subscribers.

For several years, public policymakers within the Department, the GAO and certainly on the Hill and on this Committee have been aware that CRS's have the potential to influence competition in the airline industry, and this has been mentioned here today. In 1984, the Civil Aeronautics Board found that the CRS vendors had market power, and were using it to distort airline competition.

It's important to recognize that competitive situation that pertained just four years ago. And as a result of this, the CAB acted to end, or at least mitigate, display bias, discriminatory pricing, misuse of information that's generated by the system, and the tying of CRS access to other products or services, and excessive travel agent contract terms.

Recognizing this, the CAB decided that these things were going on in the industry just four years ago. The CAB decided to prohibit those clearly abusive practices—and this is key. They tried to avoid interfering with those dynamic aspects of the industry that make it so efficient and innovative.

We believe that these rules have worked well for the most part, and this Committee is aware that we have continued our oversight of them. You, Mr. Chairman, mentioned three specific instances in which the Department has taken action to ensure that CRS's do not undermine airline competition.

We are currently reviewing both petitions for rulemaking and enforcement complaints submitted by the American Society of Travel Agents, System one, and various other travel agents and vendors, which would have us require alteration of the contract provisions in the vendor-agency contract.

Mr. Chairman, I know that you have had a chance, and other members of the Committee have had a chance, to review the study in detail, and I will not detail those findings. You mentioned some of them this morning.

I would like to point out, Mr. Chairman, that completing the study was a very difficult task, a very time-consuming task, as the Committee is painfully aware. In addition to compiling an immense amount of data from different sources, and analyzing those data in extreme detail, we've spent a great deal of time meeting with representatives of all interested participants in the CRS debate.

For several reasons, we feel that our study goes far beyond any previous efforts to understand CRS's and their influence on the airline industry.

The study was intended to gather facts and assess the state of competition in the CRS industry, and provide a basis for evaluating how CRS's influence competition in the airline industry. It reports unbiased measures of vendors' rates of return, internal rates of return on their CRS investment, provides the first reliable empirical estimates of the relationship between booking fees and vendors' costs for producing reservation services, and offers what we feel is a careful analysis of the magnitude of incremental revenue stemming from the halo effect—which it also sought to identify.

In addition, the study provides the first available look at ongoing changes in the structure and the concentration of CRS markets, and offers a careful examination of the contracts that are subject to these complaints and petitions for rulemaking. Those contracts bind travel agents to CRS vendors, and it explores the likely future roles of CRS's and travel agents in distributing air travel services.

At this stage in the evaluation of that data, and the evolution of the industry, we believe that it's appropriate to proceed cautiously before adopting regulations that would reduce the vendor's incentives to upgrade or market their systems, or would lead to higher costs for participating airlines or subscribers.

We feel that such caution is advisable for several reasons.

First, as is apparent from the discussion here this morning, the CRS industry is a very dynamic market, and a very dynamic industry in many respects. All vendors systems are continuing to improve. As we understand it, areas of virtual technical parity among the various capabilities and performance are spurred in part, we feel, by the intense competition for travel agents among the various vendors.

Despite a relatively high level of satisfaction that was reported in a recent survey of travel agents, competition for vendors, or among vendors for travel agents, has remained very intense.

According to the survey, more than one in ten agency locations had switched primary reservation systems in the past two years, and as a result of that ongoing process, the three smaller vendors gained market share at the expense of the two larger vendors.

In addition, the ownership structure of the CRS industry is currently in flux. TWA's sale of 50 percent of its PARS system to Northwest, and United's more recent sale of a 50 percent interest in its Apollo system to a group of airlines which includes US Air and Piedmont highlight a recent trend towards the separation and diffusion of the CRS operations and separation of the airline and CRS operations, and entry of carriers, new carriers, into the CRS industry.

We have received here this morning some criticism for not setting forth in the study definitive conclusions, and for not acting immediately to impose regulatory solutions for the various problems that, that people see in the study.

Yet, as I mentioned before, we believe there is a need for caution in this area. It's important to realize the limitations of the study.

Although one might conclude from the study that vendor airlines are receiving incremental airline revenues from their subscribers, and they may be charging supercompetitive booking fees, the magnitude and the precise effect of those on airline competition in the transport business are not clear.

As has been pointed out here this morning, not every profit or competitive advantage deserves to be eliminated by Government action. We are not convinced that whatever incremental revenues or supercompetitive booking fees the vendors might earn are so large that they've resulted in a threat to airline competition such that the Department should take a fundamentally new regulatory tack, such as divestiture or some form of booking fee regulation, sometimes referred to a "sea change" transformation in a regulatory approach.

This reluctance to make a sweeping or fundamental change in approach becomes, I think, even more understandable when one considers the potential down sides of the proposed solutions. Witnesses from the GAO reviewed some of those down sides this morning.

Divestiture has drawbacks. The zero-fee approach that has been advocated by some groups would seriously disrupt the travel agent industry, we believe, and could have unforeseen effects such as adversely affecting new entrants. Other proposed solutions involve similar costs and uncertainties.

This brings me back to the enforcement complaints and petitions for rulemaking which I mentioned previously and which we have pending.

We have five complaints, enforcement complaints, and three pending petitions for rulemaking. Some were filed during the pendency of our study and a number were filed after the study was released.

The issues are various and many of them overlap, but most of them deal with changes in the Department's regulation concerning the contractual relationship between the vendors and travel agents—rollover provisions, minimum use provisions, liquidated damage provisions, and requests for a three-year limit on contracts, as opposed to a five-year limit, among other things that are raised.

In light of what we now know from the study, we are currently analyzing these petitions and complaints. While we cannot predict the outcome of any of these, I assure the committee that the complaints and petitions will be explored thoroughly and expeditiously consistent with the complexity of the issues involved.

And I think we all know that this is, as it has been called this morning, an intractable problem. It's a very difficult issue for all of us.

Mr. Chairman, you raised in your questions to us the issue of net revenue transfers, and that question has come up again this morning for the reasons that we stated in our responses to your questions. As I outline in my testimony, we feel that we're unable to predict or to estimate the net effect of the very complicated transfers which take place among the airlines—what the effect is on competition or on profits.

I think that the GAO estimate, I suspect we'll get into this this morning—the GAO estimate of the profits, as I understand their testimony this morning really does not understand the sort of "netting" that takes place among all the airlines. United pays American, American pays TWA, that sort of thing.

In short, Mr. Chairman, the effects of CRS's on airline competition are complex and dynamic. The systems have produced tremendous efficiencies and benefits for airlines and consumers.

We are also, of course, aware that the systems have produced significant benefits for their airline owners as well, and that there remains a potential for the vendors to abuse their position. It is this potential for abuse that we hope to continue to explore in the context of the enforcement complaints and petitions for rulemaking now pending before the Department.

And with that, Mr. Chairman, I'll be happy to take any questions, along with my colleagues, that the committee might have.

Mr. MINETA. Thank you very much, Mr. Secretary.

At this point we have a call from the House for a vote, and I think that we'll go ahead and break at this point.

Because of a prior commitment that Mr. Gingrich and I both have, we will reconvene at 2:00. So, if you could return at that point, we will then pick up with the questions from the Subcommittee.

Mr. PETTIT. Certainly.

Mr. MINETA. So the subcommitee will stand in recess until 2:00.

[Whereupon, at 12:09 p.m., the subcommitee recessed, to reconvene at 2:00 p.m. that same afternoon.]

AFTERNOON SESSION

Mr. MINETA. The Aviation Subcommittee will reconvene.

I appreciate everyone's forbearance.

Mr. Secretary, as I understand it, the Department's basic position is that the findings of your study do not indicate a need for your Department to take any action on its own initiative to deal with the CRS problem.

The only action which the Department is to carry out your statutory responsibility to review the petitions which have been filed with the Department for rulemaking and enforcement on the computer reservation system issues.

Now, as I understand it, your commitment to review the petitions is not a commitment to grant any of the petitions and issue an NPRM, so I'd like to explore the processes that the Department followed to reach its decision that it would not take further action on its own, after the Department's CRS report was issued in May.

When was the decision made that the report did not warrant DOT taking any action on its own initiative, and who made this decision? Was any memorandum of policy analysis or recommendation submitted by the DOT staff to that deciding official?

Mr. PETTIT. Well, I think we had a variety of discussions last Spring prior to the report's being released in May.

Those discussions involved the highest level of officials at the Department in discussion with the various staffs involved in the preparation of the report. There was, as there is with most matters before the Department, an options paper prepared by the staff, and that was used to facilitate that discussion.

Mr. MINETA. Could we get a copy of that Options Paper that you just referred to?

Mr. PETTIT. GAO had last week at least informally asked for a copy of that paper. Our position at that time was one of reluctance to release it, and I think for a very good reason.

And that is that with all internal memoranda of that type, we like to obviously have full and very frank discussion with the staff, and we like to have their full and frank opinions. We felt that the release of that paper might well endanger that sort of process taking place.

I will, Mr. Chairman, decline to give you an answer specifically on that request. I'll have to take that back and discuss it with the Secretary and the Deputy and the General Counsel.

Mr. MINETA. That'd be fine. If you would get back to us on that we would appreciate it.

Mr. PETTIT. Certainly.

Mr. MINETA. In 1985, the Department of Justice completed a study of the CRS industry, and the Department of Justice concluded that despite the Civil Aeronautics Board Rules in 1984, United and American's market shares remained unchanged, and new entry was unlikely.

Nevertheless, the Department of Justice recommended a cautious approach, because the computer reservation system rules had only been in effect a short time, and because the industry was considering developing a joint CRS which might solve the problem.

Well, it's now 1988, and in the words of Yogi Berra, "it's deja vu all over again."

DOT has issued a new report which finds that computer reservation systems problems are continuing. But as was the case with the Department of Justice in 1985, the DOT in 1988 recommends no immediate action, and in support of inaction the Department of

Transportation cites developments since the report which might promote competition.

Now, these include US Air buying a share in United's CRS, and a magazine survey showing that 10 percent of the agents have switched computer reservation systems in the last two years.

In that vein, aren't there always going to be recent developments which hold the potential for more competition? And if we keep ignoring the conclusions of studies because of potential improvements from recent developments, won't we delay action forever?

Mr. PETTIT. Well, I think, Mr. Chairman, that the Department's conclusion was based on a number of factors, including those that you mentioned—the very dynamic nature of the industry, and the fact that the two largest competitors have lost some market share, and that that's a trend that at least will continue somewhat.

But as I say, there were a variety of other factors that entered into the Department's conclusion in this area.

A part of it is, I think, an uncertainty about what the effect of the numbers that we found, the conclusions that we reached, are, on the competition itself. It is fair to say, from our studies, that CRS systems command large booking fees.

It's fair to say that those companies have certain competitive advantages. But as the point was made this morning, not every profit is evil, and not every competitive advantage deserves to be eliminated by Government action.

The real problem, and this also entered into the process we were discussing earlier about the Department's conclusions in this area—the real problem is trying to measure what sort of profits and what sort of competitive impact these systems have on the airline transport business.

We found that that was a very difficult thing to do. The GAO made some conclusions this morning, but I think that what they did not include in their mix in coming to the conclusions that they did was the "netting" effect that goes on here. This is something that we've found to be very difficult to do.

In other words, American Airlines, the SABRE system, not only gets revenue from the booking fees and not only in fact from the halo effect, but also is subject to paying booking fees to other airlines—United Airlines, for example, which also has a substantial booking system. You might call it a sort of a reverse halo effect which works to its detriment.

"Netting" those sorts of things out, as our staff can tell you, is a very difficult thing to do. I am no economist but it might be useful to hear from our professional staff on the problems inherent in going through that "netting" process, to really determine what the profits are, those bottom-line profits, and thus determining what the effect on competition is.

Mr. MINETA. When you talk about market share, that has not changed in that time period you are referring to, why wasn't the Department taking any action on that.

In the earlier part of your answer, you said there was a shift in the market share for American and for United. There isn't a shift in the market share—what, 75, 78 percent?

Mr. PETTIT. Well, it's high, but I believe it has come down, and the study projected that it would come down somewhat further.

Mr. MINETA. But even from the time of the Department of Justice study to 1988, there is very little shift if at all.

Mr. BOEHLERT. Mr. Chairman, may I interject?

Mr. MINETA. Mr. Boehlert?

Mr. BOEHLERT. To that very point, according to the Department of Justice study, which was issued in 1985, the National market share for the two leading CRS vendors, measured by agency revenues, was 74 percent in 1984.

In 1985, according to the same study, it was again 74 percent, and according to your study issued this past May, that same number in 1986 was 75 percent.

So, the Chairman was right on. There has been no significant change. As a matter of fact, there's been a slight increase in the market share.

Mr. PETTIT. I'm looking again at figures that are produced by this study, but what I was referring to, as I understand is that in 1982 and 1983, and this again is based on our study, the market share combining SABRE and Apollo was 79.4 percent and had declined in 1986 to 75.3 percent.

I believe there are projections in the study, although I will ask my staff to verify that, again, of a trend downward, although I agree, Mr. Chairman, that the number changes are not great.

Mr. BOEHLERT. That 79 to 76 is not a significant market shift.

It seems to me that still would not be a reason for not pursuing this. It seems to me that your testimony also emphasizes the fact that although hundreds of millions of dollars a year are going to American and United from booking fees and incremental revenues, we don't know the extent to which this is offset by booking fees and incremental revenues going to other CRS owners from American and United.

You suggest that without knowing the net amount of revenue transferred to American and United, that we cannot evaluate the effect on airline competition.

If you believe that an estimate of the net revenue transferred is that critical to analyzing the effect of CRS's on airline competition, why didn't you go ahead and make that estimate as part of your study?

Mr. PETTIT. One of the things that I alluded to before was trying to get a handle on exactly what that "netting" is.

It's not just the "netting" that goes on between United and American and other systems, it goes on between United and American themselves.

That would involve, as I understand it—and I will ask Mr. Phillips to respond to this as well—almost a market by market look at those sorts of very complicated, five-way transactions that go on.

For example, on the O'Hare to LaGuardia route, where American and United compete substantially, there are, just as SABRE benefits from a certain halo effect, effects to its detriment, a sort of reverse halo effect working the other way, involving United. If I might ask——

Mr. BOEHLERT. Let me ask a question.

Why does it have to be done on a market by market basis? In my request, there was a letter that I sent in May of 1986, where we asked you at that time to, and I quote, "to analyze what effects incremental revenues and booking fees are having on competition between airlines".

We're going to have to now wait for another two years for another study to be completed?

Mr. PETTIT. Well, I guess what I'm saying, Mr. Chairman, is that I'm not sure that a study can be completed on that.

It would be, just as this was a large task, a monumental task to start to do. I don't know how long it would take.

If I might ask Mr. Phillips to also respond to the difficulty in "netting" those things out?

Mr. PHILLIPS. Mr. Chairman, as you mentioned, it would be very interesting to know not only the net incremental revenues that are being transferred among vendors, but also of course the net profits, not just the revenue transfers, but perhaps more importantly the profit transfers.

That's something we gave a great deal of thought to, when we attempted to do the study, but we essentially found that it was an intractable analytical problem.

Our study is based on the assumption that each vendor establishes a stand-alone system. It is based on the internal estimates prepared by each vendor regarding its estimate of what would happen if the agents that they automated remained unautomated or were automated by a hypothetically neutral system.

It does not take into account the fact that if American chooses to automate agents, United would automate them. It does not take into account those sorts of offsetting transfers that take place within the airline industry.

We know of no way to attempt to under——

Mr. MINETA. Do you know what I'm hearing?

You're not going to do anything.

Mr. PHILLIPS. Pardon me?

Mr. MINETA. You'll never get to the point of having a base of data to do anything, so you'll never do anything.

Mr. PETTIT. I don't think that's accurate at all, Mr. Chairman. I started to go through some of the very difficult problems that we have in analyzing this, and I'm saying what the study is really coming down to, what the study proves and what it doesn't prove.

As we all know, the sort of sea-change solutions—a very dramatic, sweeping solutions like divestiture and fee regulations—have negatives as well.

What we intend to do, what we have intended to do, is to go through the petitions for rulemaking that we have, enforcement complaints that we have, and use those as a vehicle for analyzing some of the very questions that you're asking us.

Mr. MINETA. We have a call in the House for a vote right now, so we'll recess and reconvene in about 15 minutes.

[Recess.]

Mr. MINETA. The subcommittee will come to order.

I'd like to call on Mr. Lightfoot.

Mr. LIGHTFOOT. Thank you, Mr. Chairman.

Mr. Pettit, your report found that major CRS owners charge other airlines booking fees that are twice the cost of making the booking.

First of all, do you think that's excessive, or in line, or what?

Mr. **Pettit**. Well, we set out, I think, a definition of reasonable in the report, which is "being close to the costs of providing that service", and certainly those figures are way above what the costs amount to.

Mr. **Lightfoot**. Well, is it excessive then?

Mr. **Pettit**. Yes, they seem to be large.

Mr. **Lightfoot**. Do you agree with GAO that excessive booking fees and incremental revenues from CRS ownership mean that most small airlines are really in effect subsidizing a few of the large ones?

Mr. **Pettit**. The small airlines are subsidizing—

Mr. **Lightfoot**. The small airlines are subsidizing the large ones, because of the fee. That is basically what GAO told us this morning.

Mr. **Pettit**. Well, there's no doubt that the airlines that don't have CRS systems are paying the booking fees, and they are being transferred to CRS systems—some amount of money. That's certainly true, and its a fair observation on the report.

There's no doubt—and I think the report's very clear on this—that the CRS business seems to be a good business. Those people who went into it when they did made a pretty good business decision to do that.

Mr. **Lightfoot**. We're hearing complaints that the fees they must pay are too high. I think, $1.85, or something in that neighborhood was mentioned earlier today.

If an airline were not to go through CRS, how much would it cost to book each flight?

Mr. **Pettit**. Well, that's difficult to answer.

There's some evidence—and again Mr. Phillips can speak to this—to, that it would cost an airline more to provide those services for itself than it's being charged as a booking fee by one of the CRS systems. There are large embedded costs, there are large economies of scale, at least as we see it in the report, which seem to create that situation.

Maybe Mr. Phillips will want to add to that.

Mr. **Pickrell**. On the basis of our analysis, we are convinced that there are pronounced economies of scale in processing computerized reservation services, which is to say that the cost of doing so is the cost per reservation. Profits decline with the volume of reservations that are processed by CRS vendors, or for that matter by an individual airline using the internal reservation system.

Because no individual airline would, acting by itself, process nearly the volume of reservations that is handled by the large CRS vendors, the cost—based on processing these through its internal reservation system—would quite likely be considerably higher than the cost that the large CRS vendors particularly are able to achieve.

In addition, the distribution of travel services through the network of travel agents may allow carriers who utilize travel agents as essentially substitutes for internal airline-employed reservations agents, to achieve some additional savings in the costs that they would otherwise bear.

So, it's quite likely—we believe that it's quite likely—that no individual airline acting on its own could process reservations, could initiate and process passenger reservations as cheaply as are particularly the large CRS vendors.

Mr. PETTIT. And that, I might add, Mr. Lightfoot, is one of the reasons that it's difficult to talk about the fees being excessive, or what sort of transfers take place among airlines that don't have the CRS systems.

I might also mention that in our evaluation of this, obviously we went over some of the remedies that might be available to us. One of those, or a series of them, involved some sort of rate regulation, and another of these involved booking fees.

I think that each of those remedies has some substantial negatives that attach to it, whether you're talking about some sort of public utility rate regulation, which is a very expensive and time-consuming process. Of just setting some sort of a fee cap, which could have competitive impact on the newer entrant vendors. For example, it was mentioned this morning, I believe Mr. Packard noted it, that what it costs Apollo or what it costs SABRE to provide these services is considerably smaller than what it costs some of the other, smaller vendor airlines.

So, depending on where that cap would be set, it could have quite a competitive impact on those small systems trying to gain market share.

Mr. LIGHTFOOT. A minute ago, we were talking about—when you said it was difficult to determine whether they were excessive or not—I'm correct, I believe, that in many cases, they're charging double their costs.

Is that correct?

Mr. PETTIT. Yes.

That's on the basis of our report. Yes, that's correct.

Mr. LIGHTFOOT. Okay.

Now, CRS does more than book airplanes. They book hotels and cars as well.

What kind of a comparison can we make about the kinds of fees they're charging for that as opposed to what they're charging the airlines for making airline reservations?

Mr. PETTIT. The fees that are charged for those services, I think, range much higher—on the order of, say, $3.00, as compared to $1.85. So I believe I'm correct in saying that they're generally higher.

Mr. LIGHTFOOT. Is there a particular reason for that?

Mr. PETTIT. I don't know. I think that it was felt that those could be charged—and again, I'll ask my colleagues to respond to this as well—but I think our feeling was that they could be charged that, because the hotels, for example, see that as just an add-on, something that is sort of gravy for them, so they don't mind paying that fee.

Again, I'll ask the economist to respond.

Mr. PICKRELL. The hotels and rental car agencies and other providers of transportation related services that pay the fees which range from about $1.50 to slightly over $3.00 are willing, and voluntarily enter into agreements to do so. Unlike their airline counterparts, they have many other avenues for distributing their services.

Our understanding is that they are willing to pay these higher fees because they feel that the bookings for hotel and rental car and related services, made through CRS's, represent business they might not otherwise have received at all.

In addition, the reservations that are booked through CRS for those services are typically for travelers who are paying the very highest rates available for those services. Typically, it's difficult to book hotel rooms at corporate or other discount rates through a CRS. You can often only book the sort of standard nightly rate, and so on.

So the reservations that are booked through these systems for those services are apparently used by recipients who are willing to pay high fees.

Since they do not rely on CRS exclusively or even to a significant extent yet as a major avenue for marketing hotel and rental car services and so on, and many other avenues both computerized and personal are available for them to market these services, our understanding is that these are less a problem—despite the fact that they're higher than airline bookings. They represent less of a potential problem.

Mr. LIGHTFOOT. Does the volume of business have any impact on it? In other words, I would assume—and maybe this is an incorrect assumption—that we're probably booking more people to fly on airplanes than we would to stay in hotels or rent cars.

Does that have any impact on it?

Mr. PETTIT. It's something like 1 to 2 percent of the airline vendors revenues that are through hotels and car rental agencies, so it's a much smaller percentage of total revenue captured.

There may be some efficiencies that are not being captured because of the small volume. We just simply don't know.

Mr. LIGHTFOOT. That would be it. I wasn't sure I understood.

Sometimes a passenger holds a confirmed ticket and will go to the check-in and will be told by the airline agent "I'm sorry, but your reservation is not in the computer." As a result, the passenger often will not be allowed on that particular flight.

Other than the obvious thing that someone just made a mistake, why does this occur? We know that it occurs because of other reasons.

Mr. PETTIT. I don't know that we picked up anything in the study to suggest why that occurs.

Mr. YOUNG. I might give you a little bit of an answer. When CAB was doing its original rulemaking, that appeared to be much more of a problem than it is today. Among all the other technological developments, there's been a great explosion in the quality of communications among the airlines.

The quality of the information that each vendor has on all the other airlines has improved, and our impression is that this problem, what the industry used to call "no-rec"—having no record on a passenger—that problem is less of a problem than it used to be. But the reason one of the frequent reasons for the problem, is the miscommunication among the computers, that it gets dropped in transit.

Mr. LIGHTFOOT. Well, I'm sure the airlines—no passenger, no revenue, and of course, it's a situation of PR as well.

But—they would do everything they could to see this doesn't happen. But is there a shortcoming in the system? Did you identify anything in that area that causes these things to happen?

Mr. YOUNG. No, sir.

I think, as you quite correctly point out, the airlines hate it almost as much as the passengers. They know that that loses them goodwill.

And another sort of fall out of that problem was in the pre-CAB rule period, that increased the tendency of a travel agent to want to have the system of the airline it had the most bookings with, because it could feel safer in booking on that airline, because it was dealing directly with that reservation.

Like I say, our perception is that the problem has been reduced quite a bit, because they have improved the way that their computers talk to one another, quite dramatically, I believe.

Mr. LIGHTFOOT. Did you ascertain if this happens, more to passengers with airlines that have their own CRS system, or those that don't?

Is there any trend there that you can identify?

Mr. YOUNG. We didn't independently study this question, but to my knowledge, we haven't gotten any complaints in this regard, and none of the airlines—we haven't gotten many complaints from airlines, for instance, that they might have suspicions that a vendor might be accidentally on purpose losing reservations of their competitors. At least I'm not aware of any complaints in that regard in the last several years.

Mr. LIGHTFOOT. Mr. Chairman, we've got the bell.

One final question.

Your study states that CRS owner airlines recover about 80 to 85 percent of their subscriber related costs from travel agents. That leaves 15 or 20 percent left over.

Where do they recover those costs? Where does that money come from?

Mr. PETTIT. Well, I think that seems to be coming out of the booking fees.

In fact, one of the aspects of—at least one of the remedies that's been talked about, which is a zero booking fee, raises the prospect that additional money, that additional revenues, the CRS systems have been getting, would come in fact from the travel agent, and they would have to pick up some of that amount, thus raising, obviously, problems with the travel agent industry.

Perhaps you'd like to add to that.

Mr. PHILLIPS. That's the answer.

Mr. PICKRELL. That's the answer.

Mr. LIGHTFOOT. Thank you.

Thank you, Mr. Chairman.

Mr. MINETA. We have a call to the House right now.

I think we'll go ahead and recess, and then, Mr. Boehlert, you'll have your opportunity.

[Recess.]

Mr. MINETA. The subcommittee will please come to order.

Mr. Boehlert?

Mr. BOEHLERT. Thank you, Mr. Chairman.

Mr. Secretary, the Department has statutory responsibility to prevent unfair methods of competition in air transportation, to prevent anti-competitive practices in air transportation, unreasonable industry concentration, excessive market domination, and monopoly power.

Now, forgive me for this preamble, but I have some questions that are going to follow it.

On June 17 of 1985, a group of travel agents known as the Membership of Individual Travel Agents filed a complaint at the Department of Transportation, alleging anti- competitive practices by CRS vendors, mainly through contract clauses designed to restrict, if not prevent, travel agents from having the choice of switching to other CRS's.

Other than stating that the Department would address these issues in its CRS investigation and report, and then taking no action on these issues after the report came out, the Department never took any action on the petition.

On September 17 of 1987, another group of travel agents, the American Society of Travel Agents, filed a petition for rulemaking at the Department, complaining about the anti-competitive effects of certain CRS contracts with travel agents, and proposing action by DOT. Again, there has not been a response by the Department.

On July 19, 1988, ASTA filed with your department a new petition for rulemaking, making the same allegations of anti-competitive practices in certain CRS contracts, specifically minimum use clauses, excessive liquidated damages, and so on.

Again, there has been nothing but silence from the Department.

I would think, and I hope you would agree, that these people are entitled to some sort of response. I guess my real question is, when does this Department plan to respond?

Mr. PETTIT. Mr. Boehlert, maybe it would be useful and of interest and help to the Committee to go through where some of these complaints are in the process.

We have, as I said in my testimony, five pending enforcement complaints, and you've mentioned some of them.

We've also gotten some very recently, as you're also probably aware of, and petitions for rulemaking, a couple of which you've also mentioned—three of those, as a matter of fact.

Some of those were filed during the pendency of our study, and we held off on them as we did the study. Some of them were filed since the study was released, incorporating some information that was contained in the study.

They are in various stages at the Department. Each of them, I can assure you, is being looked at and being worked on actively.

Mr. BOEHLERT. Two things.

One, has there been any interim response, that yes, we have it, yes, we're seriously looking at it?

Two, do you have some sort of timetable that's realistic and understandable?

Mr. PETTIT. Well, the response really is sort of the process. The interest is shown, by the fact that we're gathering various pleadings on both sides, in accordance with our own rules in these matters.

People are still filing, and actually, I think we received some comments yesterday from American, one of the ASTA rulemakings. I should tell you the record is closed, as I recall offhand, in all but one of the petitions for rulemaking.

It is closed in all but two of the enforcement complaints, but it will be some weeks before the record is complete in a couple of those.

As we look at them, they raise various issues, but they raise a lot of the issues that we've been talking about here as well, in terms of roll-over provisions and minimum—use provisions and liquidated damages, and those sorts of things. In some sense, they are linked.

As we look at them, we will be making the determination about whether to proceed and how to proceed.

Mr. Boehlert. Mr. Secretary, in all fairness, the first one that I mentioned was June 17 of 1985.

That's hardly a time for response. Here we are, three years later, and no action, no response.

I must confess that when the Chairman said what he said in response to your colloquy on market share, I had the distinct impression that the Department's position is to do nothing.

I would like to be dispelled of that notion.

Mr. Pettit. Well, in response to that, Mr. Boehlert, I think that what I'm saying, and what we're saying with this study, is not that. It is not a prescription to do nothing. So, I'd have to disagree with that characterization.

I think what it is is an attempt to be quite candid about what we know about the CRS industry and what we don't know about the CRS industry and what it will be very difficult to find out about that industry.

Beyond that, what we want to do is, in effect, what we have done in the past, and that is to take a look at some of these remedies, recognizing limitations in some of the proposed sweeping changes, in terms of divestiture, deregulation, or that sort of thing.

We are also taking a look at the other end, as we are doing in those proceedings, involving the relationship, the contractual relationship between the agents and the vendor airline.

That's what I think we're about. It's not a prescription for inaction.

Mr. Boehlert. I can appreciate some of what you're saying, not all of it.

And I'm mindful of the attitude that haste makes waste. But three years for a non-response—can you give me some sort of timetable?

Mr. Pettit. Well, we——

Mr. Boehlert. Within this decade? Within this century?

Mr. Pettit. This must be the part of the hearing where the Committee will push me for a date, and I'll try to avoid it.

I'll be the conventional witness, Mr. Boehlert. I cannot, for a variety of reasons, give you a date certain as to when we will wrap up some of these proceedings.

Mr. Boehlert. Well, can you give me some sort of ball-park indication, a parameter?

Mr. Pettit. Again it's very difficult to do.

As I say, some of the records are still open. We may need additional information. That may be the next step.

But when, and if——

Mr. BOEHLERT. Are you saving it for your next investigation?

Mr. PETTIT. I'm neither saving it for this Administration, nor saving it for another Administration, Mr. Boehlert.

We're looking at them, we're going to look at them. As you suggest, we have a responsibility under section 411 to look at them, and we will do that.

Mr. BOEHLERT. I get the drift, and quite frankly I'm not pleased with the response.

I do share the Chairman's view, and we're not getting the action on this situation that it certainly warrants.

Let me ask you—you know, we get a lot of calls for changes in the CRS contract between the airline that owns the system and the travel agent. They want to reduce the contract length from five years to three years, eliminate the minimum use clause that requires the agent to use the CRS a minimum percentage of the time, and they want to eliminate the liquidated damages provision to the contract.

What impact do you think these changes would have on travel agents' cost and ultimately cost to the American consumer? We're kind of interested in the American consumer, and keeping costs down.

Mr. PETTIT. As we are.

Those, in fact, are the very questions that we're looking at.

The idea, I think, that we approach this with is whether Government action on that can, in some sense, help competition, make it a more level playing field for the vendor airlines to approach travel agents and see, frankly, if some of the smaller vendors, some of the newer entrants, can increase their market share as a result of those actions.

Those are exactly the questions that we're looking at.

Mr. BOEHLERT. Let me ask you something that I asked the GAO.

In my opening statement, and I noted in the opening statement of our Ranking Member, Mr. Gingrich, we talked about an oligopoly.

Would you say that's a fair characterization of what exists today in the marketplace?

Mr. PETTIT. Well, I'm neither an anti-trust lawyer nor an economist.

I think that that term has a very definite meaning, and I'm reluctant to characterize it as an oligopoly.

It is an industry in which we know today two of the vendors control 75 percent, I think it's 75.4 percent of the revenue.

Mr. BOEHLERT. And it hasn't changed? There's no trend either way?

Mr. PETTIT. Well, as I suggested before, I think there's a slight trend down, but I think you're quite correct that that is a high figure, and I think our projections——

Mr. BOEHLERT. That trend—what constitutes a trend?

You said there was a slight trend down. We've gone from 72, I think, to 74, to 75, then 79 back to 76. Is that a big trend? It's pretty level to me.

Mr. Pettit. I think the projection for 1992 is something on the order of the high sixties.

Mr. Boehlert. And you see such a trend in the 1990's?

Mr. Pettit. That's going from 1992.

Mr. Boehlert. We might get—that could be down to say, 65 percent? You say that's a significant shift in market share?

Mr. Pettit. We didn't project that far out.

And that's——

Mr. Boehlert. Mr. Secretary, I get the drift.

You don't want to project anything. You still want to move.

I've been asked by a colleague to get this question on the record.

When will the Department of Transportation act on the complaint of System One, Continental and Eastern against American Airlines under section 411?

Mr. Pettit. I'm not sure about that complaint.

Mr. Young. Well, I can——

Mr. Pettit. Excuse me, Mr. Boehlert.

Is that the petition for rulemaking that was filed in August, or is that an actual complaint?

Mr. Boehlert. I'm asking for another colleague who is not here at this moment, who's vitally interested in it, so I don't have the details.

But once again, we're looking at timetables for action. Whether it's my question initially, or his question, or other questions that will come up.

I guess what we're trying to do in our attempt to get something moving is to get some indication that there's going to be a date certain when something's going to happen.

And the only thing I'm getting thus far is that—probably nothing's going to happen.

Mr. Pettit. Well, again, what is going to happen is what I suggested. And that is that we are analyzing these matters, we'll go through them and take the action that we think is appropriate when we go through that process.

You're quite right. It's an orderly and it's a time-consuming process.

Mr. Boehlert. But as to the question specific, you might not have the answer immediately?

Mr. Pettit. Let me call on Mr. Young.

Mr. Boehlert. Okay, Mr. Young.

Mr. Young. I can tell you what the status of those cases is right now.

Mr. Boehlert. Sure.

Mr. Young. The complaints against United and American were filed simultaneously in mid-August.

American's answer, I believe, was filed within the last week or so. United's is due on the 19th.

In the normal course of enforcement complaints like this, it's typical that there would be a reply by the complainant, we would expect that they would want to file something in reply.

In the normal course, especially in a complaint like this, where these are real, thick complaints with a whole lot of documentation to them, there'll probably be a need to go back to the parties to answer some questions.

Our rules contemplate in most cases that a ruling on whether to send the complaint to an ALJ will normally be done in about 60 days after the answer comes in.

Mr. LIGHTFOOT. I think a lot of us are bleeding for the travel agents. They're calling for action, and I'm most sympathetic for their call to action, and I'm most disturbed to the non-action in response to their call for action.

Thank you, Mr. Chairman.

Mr. MINETA. Mr. Gingrich?

Mr. GINGRICH. Thank you very much, Mr. Chairman.

Thank you for being so patient in the last few minutes.

A couple of things.

First of all, as part of our ongoing legal course that Dr. Mineta and I occasionally post up here, according to Black's Law Dictionary, an oligopoly is an economic climate existing where a few sellers sell only a standardized product, and it's reference is to *U.S.* v. *El Dupont Moores and Company,* D.C. Delaware 118 Supp 4149.

Given that definition, does it strike you as reasonable to suggest that we are close to an oligopoly in this setting?

Mr. PETTIT. It sounds very reasonable.

Thank you for that definition.

Mr. GINGRICH. Well, we try to be helpful.

I'm not a lawyer, but I learned how to read a couple of years back, and I try to work on it.

And I think part of the committee frustration is that you clearly have two things here that are worth dealing with.

One is that to some extent you have dominance by two companies that have earned that dominance: that is, they invested early, they put money in when nobody else did. They deserve some payoff from the entry investment process.

On the other hand, you have a system which seems to have now stabilized in such a way that it is relatively hard to see how it will change so that people have a wider range of choice in the services that they get. That stabilization worries us, and there have been some instances where companies have used their dominance not just for financial advantage, but for competitive advantage, which is a different issue, in the sense that if one never quite puts on the screen, or delays for two days, when another company's schedule shows up, or they always show up on the fourth screen, rather than the first screen—there are a variety of ways that control can become a competitive advantage and has financial consequences.

This is different from getting a reward on the investment.

On the other hand, I would commend you at one level on going slow, and that doing no harm is the first injunction of the Hippocratic oath. It's useful not to rush off and create a new kind of regulation.

I guess that I'd like to make three basic proposals, and ask you to sort of look in this direction, in the context of our British visitor earlier, who emphasized that we should seek a solution but not seek re-regulation, and I think that there's an important distinction here.

The Government should be the referee making sure the playing field is fair, but I'm not sure it ought to get involved in the teamwork and be involved in the huddle. I sense three basic issues.

The first is the requirement for minimum use by a travel agency that has acquired access to one of the systems on the grounds that that tends to lead the system to then monopolize the agency, as I understand the issue. By requiring some minimum use level, you basically lock that agent into your systems.

The second is the cost of entry and exit. It takes too long, is too slow, and is too expensive for agents to have a choice.

And the third is the danger that a company with a disproportionate market share of the service therefore can command a disproportionate premium.

For the airline company, those are the three basic charges.

The third one, I don't know if I have a good answer for right now. The first two, though, it seems to me, could be addressed in a way which changed the rules without requiring significant daily regulatory behavior.

I guess what I would urge you to look at is increasing the level of competitiveness and chaos, since chaos is the essence of the marketplace, and weakening the amount of stasis, which now has frozen market share in terms of that industry.

It should be possible to focus on setting some standards, and maybe minimum use can't be more than 30 percent—whatever it takes in order to recreate a competitive environment—by establishing two or three or four basic rules which become essentially self-enforcing in court, rather than enforced by a bureaucracy that checks everyone to make sure they're doing good.

I'm not sure precisely what those rules are, but as I said, one seems pretty simple.

You want to achieve an ability for players to get into the game, and you want to achieve an ability for travel agents to get in and out of using a particular service or using multiple services, so that you don't have any one or two companies dominating the system.

Comments?

Mr. PETTIT. Well, I share your feelings about the third option that you mention.

It occurred to me, as I was listening to Mr. McCrindle also this morning, that that might also be affected by how the contracts work.

If you posit that the industry could be made such that there is freer entry and give and take between the travel agents and the vendors, them that might also in some sense affect—or at least negate in some sense, because of all the "netting" that goes on—those booking fees, as well.

I was struck, as I think you were, Mr. Gingrich, by Mr. McCrindle's comment in effect that we're really not—we really don't have a clean slate, we're not dealing with a clean slate in this area. We have companies that made the investment, as you say, 10 years ago or more, and are receiving now the benefits of those investments, and companies too that have provided a service and benefits to the American people.

So it is difficult, and we don't start——

Mr. GINGRICH. But let me comment for a second, that there is a principle enshrined in patent law, that while one has the right to royalty on first invention, the right is not in perpetuity, and you may be faced with a similar sort of thing.

Certainly we would not want to deprive anyone—I don't mind if they get an unreasonable windfall profit. I think if the person has the courage and the resources and goes out there and makes the investment, they could get back substantially more than a public utility.

On the other hand, it's a little hard, it seems to me, to argue that a prospective set of rule changes that would reshape the marketplace over the next five years would significantly harm two institutions that have far more than repaid the initial investment, and which I think in one case have at times provided a larger profit than the actual airline itself.

So, I think it's a little bit hard for them to come in and say we're doing so well because we offer such marvelous service, and that's where we make such massive profits. By the way, if you make it possible for people to choose whether or not to keep our service, it might not be quite marvelous enough at that point.

Mr. PETTIT. All right.

I hesitate to talk about patent law, because I know that you're armed with Black's Law Dictionary——

Mr. GINGRICH. I promise we'll only open it once this session. We won't go back to it a second time. Except by witness' request. If we get to something you want to know, we'll try it. [Laughter.]

But go ahead.

Mr. PETTIT. I'm getting signals here that my colleagues want to comment on that as well.

Mr. PICKRELL. Well, I'd like to comment on this issue of dominance that has come up so frequently this afternoon, at least.

Our view is that the relevant market for measuring, in which to measure market shares, is not the National CRS market. Instead, we think you ought to focus on the markets in which airlines compete, and those are either individual urban areas, or even more precisely city pairs, origin and destination markets, over which carriers compete.

If you do so, if one does so, you find that many CRS markets are far less concentrated than the National market shares of the two largest vendors would suggest.

On the other hand, there are a lot of those markets that are even more concentrated than would be the National CRS market for Apollo and SABRE.

But I think the point is——

Mr. GINGRICH. Well, assuming you did that, Mr. Pickrell, I'm certainly willing to, having once been a college professor, and as I'm enjoying the lavish opportunity to arrange permutations endlessly—assuming that you find there are some markets that are virtually 100 percent, and other markets that are down as low as 40 percent, or that are even dominated by a third party, not the big two——

Mr. PICKRELL. Right.

And there are many.

Mr. GINGRICH. What do you conclude from that?

Mr. PICKRELL. Well, that was going to be my other point.

I don't conclude very much from it, for two reasons.

First of all, I don't believe that dominance is the source of the market power vendors enjoy to set the fares. Even small vendors have enjoyed the same market power to set fares above cost that their larger counterparts do, simply because that market power stems not from a large market share.

Instead, it stems from the inability—my opinion is that it stems from the inability of the participating carriers to influence potential passengers on their flights to patronize travel agents that are equipped with CRS's that charge lower booking fees.

In other words, if I'm US Air, I can't influence potential passengers on my flight to walk into the door of a travel agent that chooses to equip itself with a CRS that charges me lower booking.

Mr. GINGRICH. But isn't your argument, sir, that if there are two agencies that have 76 percent of the market, on a national aggregate basis, as distinct from a city pair basis, and those two are quite cheerful to legitimately exercise the rewards of their oligopoly—it's a little bit hard in most parts of the country to see how you'd ever have a big enough price differential to get that competition down to the point where you compete.

I mean, you discover frankly almost precisely the same pattern in soft drinks, where Pepsi-Cola and Coca-Cola dominate the market. As a consequence, almost all soft drinks tend to cost almost the same amount, even if they're in two machines side by side.

They have managed to somehow magically conclude that that is a reasonable price. You almost never see price competition between the two corporations.

Similarly, if you're the two lead corporations and you have 76 percent market share, the incentive for you to see if you could lower the price is almost nil, and if you're a smaller corporation, your capacity to play that game is almost nil.

This goes back to the General Motors model of oligopoly in the 1950's and 1960's. Chrysler couldn't have price competition because the one thing they knew from GM was that the morning they started it, GM would drive them out of business.

Mr. PICKRELL. I think that is a false analogy in this situation.

Mr. GINGRICH. OK, why?

Mr. PICKRELL. Because I think that the market power in this case stems from the fact that no participating carrier has an advantage—has the opportunity to take advantage of price confrontation.

I guess it really doesn't matter—the end result is that you don't have much. Whether or not the CRS market——

Mr. GINGRICH. Well, there are two things here.

Not only do you not have a price competition with the carriers, as I understand it, if you are the travel agent, it's very difficult for you to have price and service choice, because you're essentially trapped.

Mr. PICKRELL. By the contracts.

Mr. GINGRICH. By the contracts.

Two problems.

Mr. PETTIT. On the booking fees, the thing that makes it so difficult is that the person who is making the choice as to which vendor to choose is the agent, and that agent really is not concerned about what price the vendor charges the other airlines for the booking service.

That makes it very hard to get a handle on it.

Mr. GINGRICH. Well, I'm just playing games here.

If we get a 30 percent minimum use, and it were suddenly worthwhile to have two systems in the same office—it would then, you might see all sorts of competition occurring.

You might see the two services saying to the agent, "Book on me," and you get Brownie points, or you get money, or you get 1,100 trips to Cancun, whatever that year's goodie is.

All I'm suggesting is that by definition in a relatively oligopolic system, you get stasis—and I know you don't buy that argument.

But if 76 percent for the top two isn't close to an oligopoly by definition, I'm not sure what it takes to get there.

And all I'm asking is, it would seem to me you also clearly have a fair number of captive travel agents, just given the way the contracts are structured.

Now, that's prima facie, or on the surface of it, or whatever that means—true. Why would you not then, over the next six months or so, shape fundamental changes in the rules to make that no longer true?

Mr. PETTIT. Again, I think that those are precisely some of the questions that we're looking at.

I don't know if they'll be completed over the course of six months. But that's——

Mr. GINGRICH. Well, I can accept being late in the Reagan age, that they may not be completed by the beginning of the Bush four years. But it will worry me if we get to another President beyond that one. [Laughter.]

I think at that point, we've gone a little slower than even this.

I thank you all. It's been a very long day, and you've gotten to see the House at its least efficient, and I appreciate very much your taking this much time to deal with us.

I thank you, and I thank the Chairman.

Mr. MINETA. Mr. Cardin?

Mr. CARDIN. Thank you, Mr. Chairman.

I understand that the main focus of your study is the competitive advantages when using the CRS system by travel agents placing the bookings.

But I would like to focus, if I might, on whether your study looked at the internal use of an airline of the CRS system in making either bookings or using the information for other purposes, and whether there was any information that came to your attention of concern in regards to competition by an airline that owns its own CRS system.

Mr. PETTIT. Let me turn to Mr. Phillips.

Mr. PHILLIPS. We do of course have a voluminous amount of documentation in terms of how the vendors use the information acquired through their CRS's. We did not see anything in that body of information that would lead us to conclude that they were using it in some sort of anti-competitive manner.

Mr. CARDIN. Do any airlines use CRS for their own internal bookings, if you call an 800 number for an airline?

Mr. YOUNG. Well, all the vendors use the same central processing site and the same software to run both their internal systems and the system that's shown to the travel agent.

So in that respect, they all use the same system for both purposes.

Mr. CARDIN. But the study does not show any concern in regards to competition, the fact that an airline owns its own CRS, has it virtually paid for through vendors, and then has the bill to use it internally?

Mr. YOUNG. Maybe the economists can speak to it in more detail.

But we made an effort to separate out this effect in determining the return on investment—the cost of running the internal reservation system, and we did not take account of that in deciding what the costs of the CRS system was.

We tried to look at the CRS separately from the airline. That's admittedly a difficult and sometimes artificial line to draw.

Mr. CARDIN. Thank you, Mr. Chairman.

I have no more questions.

Mr. MINETA. Again, following up on Mr. Boehlert's request for target dates—is it your answer that you don't have target dates, or that you have them, but you don't want to tell us what they are?

Mr. PETTIT. I don't think we do have target dates, in terms of decisions on moving the NPRM's, deciding what to do with the NPRM's, or the particular enforcement complaints.

There is no date certain, and as I tried to suggest, it's very difficult to come up with a certain date, which leads to my reluctance in talking about six months from now, or the end of the Administration, or any other date.

Mr. MINETA. And yet this is important subject matter, and it seems to me that given the importance of the subject matter, you would have thought about setting some sort of a target date.

Mr. PETTIT. Well, again, some of the procedural dates have not run in these proceedings, and I think that at some point we have to make some decision, if the decision is to go forward with something, about consolidation of those.

And I think we have to see what we have first. I can assure you that this will, during my tenure in this Administration, have my personal attention, and as I have said before, we are seriously and very deliberately looking at this.

Mr. MINETA. In my written questions, I asked whether CRS ownership had played a major role in the post-CAB sunset wave of airline mergers.

Your answer indicates that the Republic-Northwest and the US Air-Piedmont mergers were not influenced by CRS concerns.

The basis for this conclusion is that when the mergers occurred, neither of the merging carriers owned a computer reservation system.

Now, I would question whether this is an adequate analysis of the problem. Before the wave of mergers, I had heard from a number of sources that most of the smaller carriers in the industry had come to the conclusion that because of the CRS situation, there was no long-term future for a carrier which was too small to become a player in the CRS business. And to overcome this handicap, a small carrier needed to merge with a carrier already owning a computer reservation system, or with a carrier that did not own a CRS, but was large enough to get into the CRS business at the appropriate time.

Would you agree with me that the CRS situation may have been a major cause of airline mergers, even when the mergers involved carriers not currently owning a CRS?

If you agree, do you have any further opinion on how important the CRS problem was as a cause of mergers?

Mr. PETTIT. I would agree that that may well have been a factor in some of these mergers, although as we suggest, there are mergers that have taken place among carriers that don't involve a CRS system.

Despite what you were told, the information that you received, there do seem to be carriers that performed well—Midway, Braniff and Southwest—in the absence of a CRS system.

It is difficult, again, to anlayze the questions and this is one of the answers we don't have from the study. Our difficulty is in analyzing the precise effect from the mergers, and it's again wrapped up in our inability to project the profits, what the bottom-line effect on the companies has been.

Let me ask Mr. Phillips to speak to that as well.

Mr. PHILLIPS. I can add very little to that.

In reviewing the merger applications that have occurred, it's clear that CRS ownership has an influence. In meeting with carrier representatives, it's clear that they believe that to become part of the CRS, or to obtain some critical size, is important.

We have no idea how important, but clearly they believe it is so.

Mr. PETTIT. Perhaps some of the proof of that, Mr. Chairman, is in the fact that US Air-Piedmont, for example, bought into the Apollo system, and Northwest bought into the PARS system.

I think there is a perception that it is important, and probably that it's a good business.

Mr. MINETA. One of the arguments you make for not taking action on the CRS problem is an argument that I've heard many times over the past few years. That is, the argument that CRS is just another competitive advantage.

The argument points out that some carriers have strong CRS systems while other carriers have low labor costs or strong hubs.

And the conclusion which you appear to reach from this argument is that because of offsetting competitive advantages, there may be no need for the Government to do anything.

I should note that in the past few years, a number of the airlines have made this type of argument to me to justify various practices.

Texas Air has told me that their labor relations practices are necessary because they must compete with American and United and their CRS dominance.

American has told me that its CRS practices are necessary to compete with Continental's low labor cost.

Now, I would agree that under deregulation, carriers should be permitted to take advantage of their legitimate competitive advantages. But there are limits to the types of competitive advantages which we allow under our legal and economic systems.

If American and United are gaining advantages from their CRS systems because of monopoly powers and unfair competitive practices, then these competitive advantages are inconsistent with the antitrust laws and related provisions in the Federal Aviation Act.

Now, I'd appreciate your comments on whether you think there are any limits on the competitive advantages, which airlines should be allowed to gain through their computer reservation systems?

Mr. PETTIT. I think clearly they are, and I think that's why our forebears at the CAB acted in 1984.

Again, the question of competitive advantages, whether one particular competitive advantage is something that the Government ought to prohibit, for us goes back to Section 411 as to whether that is deemed to be an unfair method of competition.

Of course, under the Sherman Act, there is a different standard of monopolization, in which courts are involved than with regard to this area.

Again, those are the kinds of questions, whether the particular competitive advantage is accorded to CRS vendors particularly from the contracts, and those contractual practices—these are the very questions that we're looking at in the context of the petitions and complaints before us.

Mr. MINETA. Well, at least in four places in the response that I got from the Department, you state that CRS ownership confers competitive advantages. You even say that there is little doubt about that, and the DOT study itself shows that these competitive advantages are substantial. Profit margins of 100 percent, huge halo revenues besides, and for years, the Department has refused to take action on CRS, because these competitive advantages were speculative.

Now the Department has completed a study which eliminates the need to speculate on these competitive advantages.

Unfortunately, now that the time to act has arrived, the Department has no hesitation to speculate to support a refusal to act.

Maybe, we're told, the advantages of CRS ownership are not insurmountable. Maybe, we are told, airlines which don't own CRS's will have competitive advantages, even though the real world seems to say it isn't so.

Maybe, we are told, the industry is becoming more competitive and maybe intervention could hurt this development.

Maybe, we are told, DOT intervention could result in other inefficiencies, and so on.

First, it was maybe there's not a significant competitive advantage, and now that we've finally established that there are such advantages, the Department is saying maybe it isn't necessary to do anything.

What I find missing in all this is a genuine effort to balance the maybes. I'm concerned about the bigger maybes: that maybe this industry won't be competitive, maybe we will lose the gains that we have gotten from airline deregulation.

And that's why I keep sort of beating on the same drum here.

I know I'm not going to get an answer that's any different from what you've told me already, but I just had to say that. I find myself with a degree of frustration that I think has been expressed by Mr. Boehlert, and I'm wondering maybe at this point before I conclude these hearings, if you have any further comments.

Mr. PETTIT. I would like to say something, Mr. Chairman, that would assuage your concerns, but I don't know what that would be, other than that, with knowing what we know and what we don't know from our study, we're going to go through very methodically *and thoroughly reviewing these complaints.*

I can assure you that we will do that, and those will have my attention.

We will complete this.

Mr. **Mineta**. Well, Mr. Secretary, thank you very much, and we welcome you to your first hearing.

It wasn't that bad, was it?

Mr. **Pettit**. Well, actually when I was first invited, I was thinking of availing myself with the benefits of the Witness Protection Act. [Laughter.]

Mr. **Mineta**. Mr. Phillips, Mr. Pickrell, Mr. Young, thank you very much.

[Whereupon, at 4:20 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

[Mr. Pettit's prepared statement and responses to Mr. Mineta's additional questions follow:]

TESTIMONY OF ROBERT L. PETTIT
ASSOCIATE DEPUTY SECRETARY
U.S. DEPARTMENT OF TRANSPORTATION
BEFORE THE SUBCOMMITTEE ON AVIATION
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
SEPTEMBER 14, 1988

Good morning, Mr. Chairman, and Members of the Committee. It is a pleasure to be here today to discuss the computer reservation systems (CRSs) industry and the Department's recent report on the industry. I am accompanied at the table today by Larry Phillips, Chief, Industry Economics and Finance Division, from the Department's Office of Economics and Bob Young, Trial Attorney, from our Office of Litigation. Also with us is Don Pickrell, Senior Economist, with the Department's Transportation Systems Center. These gentlemen drafted the report, and they will be available to answer any questions you or other Members of the Committee may have on our study.

Computer reservation systems have become an indispensable technological link in the distribution of airline services. Two factors are primarily responsible for the increasing role of CRSs in the air travel industry. First, airline deregulation has promoted a proliferation of fare and service offerings. Computers are the most efficient way this vast amount of rapidly changing information can be made available to the traveling public. Second, computer technology has continued to develop at a rapid rate, thereby increasing the capability of computers to store, process, update, and retrieve the large amounts of data contained in CRSs quickly and efficiently.

The CRS vendors participate in two basic markets. In one market, they provide reservation services for the airlines, hotels, car rental companies, and other firms that participate in their CRSs. Airline and non-airline participants agree to pay a fixed fee for each reservation booked. In the other market, the CRS vendors provide equipment, training, and support services to travel agents and other subscribers, for which vendors charge monthly or annual fees. Contracts between vendors and subscribers and between vendors and participating airlines specify these services, the fees charged, and the terms governing vendors' relationships with participants and subscribers.

For several years, public policy makers have been aware that CRSs have the potential to influence competition in the airline industry. The Civil Aeronautics Board (CAB) found that the CRS vendors had market power, and that they were using it to distort airline competition. Some of the practices the CAB found to be unfair and anticompetitive were display bias (suppressing information on competitors' flights to increase sales on the vendor airline), discriminatory pricing, misuse of information generated by the system, the tying of CRS access to other products or services, and excessive travel agent contract terms. While it was concerned about these problems, the CAB also recognized that CRSs produced substantial benefits for the traveling public and participating airlines -- as well as many legitimate benefits for their airline owners. Recognizing this, the CAB decided to prohibit the clearly abusive practices, but tried to avoid interfering with those aspects of the industry that made it so efficient and innovative. Thus, the rules it promulgated in 1984 prohibit display bias, discriminatory pricing, tying, and certain practices regarding travel agents. They also require vendors to disseminate marketing information to all domestic participants.

We believe that these rules have worked well for the most part. We see little evidence of continued display bias, discriminatory pricing, tying or abuse of marketing information. The Department has taken action when necessary to ensure that CRSs do not undermine airline competition. In one instance, we took enforcement action against and subsequently reached a consent agreement with a vendor regarding biased displays. In another instance, we reached a voluntary agreement with vendors to eliminate biased "secondary" display screens. And recently, we reached a voluntary agreement with vendors to eliminate rollover provisions in new subscriber contracts and to modify their flight-ranking algorithms to minimize reliance on elapsed time as a ranking factor. As I will detail later, we are currently reviewing petitions for rulemaking and enforcement complaints submitted by the American Society of Travel Agents, SYSTEMONE Direct Access, travel agents, and vendors that would have us require the alteration of certain provisions in vendor-agency contracts.

Mr. Chairman, since I know that you, other Members of the Committee, and your staffs have reviewed our study, I will not detail the findings. In brief, the Department's study first reports that both markets in which CRS vendors participate -- one where they supply reservation services to other airlines and the other in which they provide equipment, training, and group support to travel agents -- are concentrated and that there are substantial impediments to new entry into the industry. The study next analyzes the financial benefits each vendor receives from the ownership of a CRS and concludes that some vendors appear to be earning substantial rates of return on their CRS-related investment. It also evaluates the relationship of fees charged by vendors for reservation and subscriber services to the costs they incur in providing these services and concludes that some vendors' current booking fees are substantially above the costs they incur in processing reservations. The study then examines the effect of various provisions of contracts between CRS vendors and travel agents on competition among vendors and on the prospect for reduced market concentration through agency conversions or entry by new vendors. Finally, the report examines the potential for new technological developments to influence the roles of CRSs and travel agents themselves in the distribution of air transportation service.

I would like to point out, Mr. Chairman, that completing the study was a very difficult task. In addition to compiling very large data bases from disparate sources and analyzing those data in extreme detail, we spent a great deal of time meeting with representatives of all interested participants in the CRS debate.

For several reasons, we feel that our study goes far beyond previous efforts to understand CRSs and their influence on the airline industry. Our study was intended to gather facts, assess the state of competition in the CRS industry, and provide a basis for evaluating how CRSs influence competition in the airline industry. It reports unbiased measures of vendors' rates of return on their CRS investments, provides the first reliable empirical estimates of the relationship between booking fees and vendors' costs for producing reservation services, and offers a careful analysis of the magnitude of incremental revenues stemming from the halo effect. In addition, the study provides the first available look at ongoing changes in the structure and concentration of CRS markets and offers a careful examination of the contracts that bind travel agents to CRS vendors and explores the likely future roles of both CRSs and travel agents in distributing air travel services.

At this stage in the evolution of the industry, we believe it is appropriate to proceed cautiously before adopting any regulation that would reduce the vendors' incentives to upgrade or market their systems or would lead to higher costs for participating airlines or subscribers. Such caution is advisable for several reasons. First, the CRS industry is very dynamic in many respects. For example, all vendors' systems are continuing to improve -- as well as to become more comparable to one another -- in capabilities and performance, spurred in part by intense competition for travel agency business. Despite an apparent high level of satisfaction as reported in one survey of travel agents (Travel Weekly, July 29), competition among vendors for subscribers remains intense. According to this survey, more than one in ten agency locations has switched primary reservation systems in the past two years, with the three smaller vendors gaining market share at the expense of the two early vendors.

In addition, the ownership structure of the CRS industry is currently in a state of flux. TWA's sale of 50 percent of its PARS system to Northwest, and United's more recent sale of a 50-percent interest in its APOLLO system to a group of airlines, including USAir and Piedmont, highlight a recent trend toward the separation of airline and CRS operations and the entry of carriers into the CRS industry. Also, the CRS industry is becoming more "international," with foreign and domestic air carriers combining in consortia to provide CRS services in Europe and Asia, and with other U.S. vendors entering those markets on their own. In sum, Mr. Chairman, market forces are transforming the CRS industry.

We have received some criticism for not setting forth in the study definitive conclusions, and for not acting immediately to impose regulatory "solutions" to various urgent "problems" that the study supposedly reveals. Yet, as I mentioned before, we believe there is need for caution. It is important to realize the limitations of the study. Although one might conclude from the study that vendor airlines are receiving incremental airline revenues from their subscribers, and may be charging "supracompetitive" booking fees, the magnitude and precise effect of these practices on airline competition are not clear. Not every profit or competitive advantage deserves to be eliminated by government action. We are not convinced that whatever incremental revenues or supracompetitive booking fees the vendors might earn are so large that they have resulted in a threat to airline competition such that the Department should take a fundamentally new regulatory tack -- such as divestiture or some form of booking fee regulation.

This reluctance to make a "sea change" in regulatory approach becomes even more understandable when one considers the potential downsides of the proposed solutions. For example, divestiture could undercut much of the efficiency of the systems and might not have any effect on prices. Fee regulation has drawbacks from the standpoint of cost and efficiency. The "zero fee" approach that has been advocated by some groups could seriously disrupt the travel agent industry and could have unforeseen effects, such as adversely affecting new entrants. Other proposed solutions involve similar costs and uncertainties.

This brings me back to the enforcement complaints and petitions for rulemaking which I mentioned previously. We now have pending before the Department five complaints and three petitions for rulemaking -- some filed during the pendency of the study, some filed after the study was released. The issues are various and many overlap, but most deal with changes in the Department's regulations concerning the contractual relationship between vendors and travel agents: rollover provisions, minimum use provisions, liquidated damages provisions, and a three-year limit on contracts, among others. In light of what we know from the study, we are currently analyzing these petitions and complaints. While I cannot predict the outcome of any of these, I can assure the Committee that the complaints and petitions will be explored thoroughly and expeditiously, consistent with the complexity of the issues involved.

Mr. Chairman, I would like to address an issue raised in several of your pre-hearing questions -- the concept of "net revenue transfers." As we stated in our responses to your questions, we are unable to make any useful or reliable estimates of such "transfers," which I presume you mean to be the net incremental airline revenues enjoyed by vendor airlines because of their ownership of a CRS and some portion of the booking fees paid to the vendors by participating airlines.

Our study clearly supports the conclusion that each vendor airline has enjoyed substantial economic benefits from owning a CRS. To estimate net revenue transfers, however, one would not only have to account for the incremental revenue each vendor receives because it operates a CRS, but one would also have to estimate the substantial airline revenue each vendor airline "loses" to the other vendor airlines. But even if we could estimate these net airline revenue transfers, as our study shows, these benefits can vary greatly depending on one's assumption about the costs the vendor airlines incur to carry this incremental traffic. Equally difficult conceptual and measurement problems would arise in trying to estimate the net revenue transfers that arise from booking fees.

In addition, there is reason to believe that the vendors produce CRS services more cheaply than would be the case if non-CRS-owning airlines had to provide these services for themselves. Thus, while there may be a net revenue transfer from non-CRS-owning airlines to the vendor airlines, there may be net savings for non-vendor airlines. Faced with these realities, any estimate, no matter how precise, of CRS-generated net revenue transfers by themselves would not be a particularly useful indicator of how CRSs influence airline competition.

In short, Mr. Chairman, the effects of CRSs on airline competition are complex and dynamic. The systems have produced tremendous efficiencies and benefits for all airlines and consumers. We are also, of course, aware that the systems have produced significant benefits for their airline owners as well, and that there remains a potential for the vendors to abuse their positions. It is this potential for abuse that we hope to continue to explore in the context of the enforcement complaints and petitions for rulemaking now pending before the Department

Mr. Chairman, this concludes my prepared statement. I would be pleased to answer any questions that you or other Members of the Committee may have.

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

SEP 9 1988

The Honorable Norman H. Mineta
Chairman, Subcommittee on Aviation
House of Representatives
Washington, D.C. 20515

Dear Norm:

Thank you for your letter on the Department's Study of Airline Computer Reservation Systems. I appreciate your kind words on the quality of our analysis. Enclosed you will find our responses to the questions you attached to your letter.

Several of your questions ask us to estimate and discuss what you refer to as "net revenue transfers." As our answers detail, we are unable to make any useful or reliable estimates of such a measure. While our study clearly supports the conclusion that each vendor has enjoyed substantial benefits from its own CRS investments, we are not able to estimate net gains or losses from CRSs on an industrywide basis. It also is not clear whether such estimates would be particularly useful for evaluating the role of CRSs for influencing airline competition.

Our study estimated the gross incremental revenues a vendor airline receives from owning a CRS. Several of your questions seem to imply that our gross revenue estimates may approximate net revenue transfers. This is not the case. In fact, we are unable to calculate net revenue transfers for several reasons, although as we explain in our responses to your questions, we believe they are substantially lower than our gross revenue estimates. For example, our revenue figures reflect only incremental gains in passenger traffic realized by each vendor through its CRS. But each vendor airline participates in all other CRSs, and thus some portion of any incremental passenger revenue a vendor airline receives is offset to some degree by what it loses to other vendors. I would also point out that any consideration of "net" winners or losers from CRSs should take account of the fact that the development of CRSs has benefited all parties, including non-vendor airlines, travel agents, and the public.

Much of the innovation and consequent public benefits flowing from CRSs have been spurred by the intense competition among vendors for travel agent subscribers. We must not lose sight of the fact that there is more rivalry in the CRS industry for subscribers today than there was in the past. A recent travel agent survey conducted by Travel Weekly (June 29), for example, indicates that one in ten agency locations has switched primary reservation systems in the past two years, and that 58 percent of all automated locations have been approached about switching systems in the past year.

Other promising developments are taking place as well. United's recent sale of a 50 percent interest in the APOLLO system to a group of domestic and foreign airlines highlights a recent trend toward the separation of airline and CRS operations. Also, the CRS industry is becoming more "international," with consortia of foreign and domestic air carriers combining to provide CRS services in Europe and Asia, and with other U.S. vendors entering those markets on their own.

Given these developments, our continued oversight of the CRS industry, and the rules that are already in place, we do not think it would be in the best interests of the traveling public or the airline industry to propose any sweeping new CRS regulations at this time. We are, of course, willing to consider, and are considering, proposals to improve our regulation of the CRS industry.

I hope this information is helpful.

Sincerely,
ORIGINAL SIGNED BY

Mimi Dawson acting for
Jim Burnley

Enclosure

P-37:LPhillips:glc:7-20-88:65412
Rewritten, 7/88 and 8-12-88 w/ RYoung(C-30)
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gloriac/docs/Mineta

QUESTION 1: Please furnish the Committee with DOT's best estimate of the net revenue transfer to American Airlines and United Airlines from the rest of the industry based upon DOT's May 1988 CRS report for the period prior to November 1984 and for the period subsequent to November 1984 through December 31, 1987.

ANSWER: For a variety of reasons, the data reported in the study on unit costs and revenues, financial benefits of CRS ownership, and incremental revenue estimates do not provide a reliable measure of any net revenue transfer, as we understand that phrase, to American and United; nor do they provide a basis for constructing an estimate of these transfers.* A number of considerations, however, lead us to conclude that any net revenue transfer is much smaller than the $1 to 2 billion figure cited in Question 5.

Our study attempted to measure the increased airline revenue that vendors generate for their airline affiliates by having their CRSs placed in travel agents on a national level. These figures cannot readily be recast into net revenue transfers. First, the figures in the study reflect only incremental gains in passenger traffic realized by each vendor through its own CRS. Both American and United are participants in other CRSs, and some portion of the incremental revenue that the other vendors gain will come at the expense of United and American. Any attempt to estimate the net revenue transfers to American and United would thus have to account for their revenue losses to other CRSs.

It may well be that American and United are in fact net gainers in this respect. Whether this is true and the size of any gain will be influenced by a number of factors, principally the structure of local CRS and airline markets and booking patterns of individual travel agencies. The data gathered by the Department do not permit the kind of market-by-market and agent-by-agent calculations necessary to estimate any net incremental revenue gains (or losses) of any vendor. We feel confident in concluding, though, that the large vendors' incremental revenue losses through other systems would negate a significant portion of the gains they realize through their own systems.

Even if the Department could reliably estimate the net amount of incremental revenues that American and United gain, any attempt to estimate net revenue transfers should also reflect cost considerations. For incremental airline revenues, the vendor airline benefits only to the extent that incremental revenues exceed the costs of carrying additional traffic. As our study shows, these benefits can vary greatly depending on one's assumption about the costs which American and United incur to carry this traffic. The appropriate costs to assign to incremental traffic also depend on a variety of factors, particularly the level of "capacity costs" properly attributed to this traffic. Carrier decisions on the amount of capacity to supply to a market (including both number of flights scheduled and equipment size) will be influenced by a number of considerations, and a carrier's projections of the amount of traffic it will carry is no doubt one of them. The data used in our CRS study, however, do not permit us to determine exactly what factors influence individual carriers' capacity decisions, and any effort by the Department to project a "typical" capacity decision model would be of questionable utility. In these circumstances, the Department is simply unable to incorporate the appropriate capacity costs in calculating the net revenue transfer to American and United.

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* The term "net revenue transfer" is not defined. It it assumed for purposes of this answer that the "revenue transfers" referred to are composed of two elements -- incremental airline revenues enjoyed by the airline affiliate of the vendor, and some portion of the booking fees paid to the vendors by participating airlines.

The other source of potential revenue transfer to American and United is booking fees paid by participating airlines. While some information in the report suggests that booking fees generate large profits for the vendors, a number of factors preclude reliance on the figures in the report to calculate net revenue transfers. First, as in the case of incremental revenues, any estimate of net revenue transfer should account for the booking fees that American and United pay to other vendors. The amount paid will depend on the booking patterns of individual travel agents that in turn will be influenced by conditions of local CRS and airline markets. American and United may well be net gainers in this exchange of booking fee revenues, although as large airlines their sales could potentially generate substantial bookings through other CRSs. The Department does not have the information necessary to do the market-by-market analysis necessary to determine precise booking patterns.

Cost considerations would also be relevant in attempting to determine the net revenues gained by vendors through receipt of booking fees from other airlines. Since participating airlines purchase a service with their booking fee payments, it may be appropriate to consider as a net revenue transfer the difference between booking fees actually paid and the potential cost to participating carriers of purchasing the services in a competitive market or of providing these services for themselves. While the CRS study attempted to estimate the average unit booking costs of providing CRS services, the study also demonstrates that these costs vary widely depending on the vendor, as well as how costs are allocated between servicing participating carriers and travel agent subscribers. If a participating airline had to provide CRS services (or an alternative means of communicating with travel agents) directly, its costs could be higher than the booking fees it now pays. In that case, the booking fees might actually represent cost savings for participating air carriers.

It is possible to estimate from information contained in the DOT report the gross revenues received by American and United from all other airlines through 1986. Because all of the information submitted to the Department by each CRS vendor was compiled for calendar years, it is not possible to allocate reliably revenues received during 1984 between those received during the January-November 1984 period and those received during December 1984. Further, at the time the study was performed no data for 1987 revenues were available from any of the vendors; only the Department's own estimates are available for 1987.

Using data reported in Tables 4.1, 4.2, 4.6, and 4.7 of the DOT report, the estimated gross revenues received by American and United from other airlines (thus excluding revenues received from travel agents) are presented below. We have not subtracted the booking fee revenues American pays to United or United pays to American.

Recipient	Source	Estimated Total Through 1984	($ Millions) 1985-6	1987
American Airlines	Booking Fees	$193.9	$430.0	$250.6
American Airlines	Incremental Revenues	$1,426.3	$539.0	$276.1
United Airlines	Booking Fees	$154.4	$327.0	$173.4
United Airlines	Incremental Revenues	$788.8	$483.0	$291.6

As suggested above, some portion of American's booking fees and incremental revenues was received from United. Likewise, a portion of United's booking fees and incremental revenues was received from American.

QUESTION 2: Do you believe that revenue transfers of this magnitude would have any effect on airline competition? On scheduling? On fares? On equipment decisions? And on decisions on cities and markets to be served?

ANSWER: As discussed in our response to Question 1, we are unable to estimate net revenue transfers to the vendor airlines. Nevertheless, the report suggests that CRS ownership confers competitive advantages on vendors in some circumstances, especially when compared to non-vendor airlines. To the extent CRS ownership does so, CRSs may well affect the decisions of vendor airlines and non-vendor airlines alike on fares, schedules, equipment, and city-pair markets to be served.

We are, however, unable to say exactly what that competitive impact of CRS ownership is. Airline competition depends on the interaction of a number of factors. Non-vendor air carriers may have other competitive advantages -- lower labor costs, more efficient aircraft, the benefits of hub-and-spoke systems -- not available to a vendor airline in particular markets that would offset the competitive advantages of CRS ownership. Any attempt to draw conclusions about the impact of CRS ownership on competition in these markets based upon estimates of national net revenue transfers to vendors, even if such estimates could be made reliably, would be suspect.

There is good reason to believe that the vendors produce CRS services more cheaply than would be the case if non-CRS-owning airlines had to provide these services internally. Thus, while there may be a net revenue transfer from non-CRS-owning airlines to the vendor airlines, the non-CRS-owning airlines are probably saving substantial amounts of money over what they would incur if they chose to produce these services for themselves.

The competitive benefits of CRS ownership are potentially substantial. Indeed, airlines' perceptions of the benefits of CRS ownership may explain why there has been a diffusion of CRS ownership over the last two years, with Northwest's acquisition of 50 percent of TWA's PARS, Texas Air Corporation's acquisition of Eastern's SYSTEMONE, and the acquisition by USAir and several foreign carriers of equity positions in United's APOLLO system. But the fact that CRS ownership may give competitive advantages to vendors by itself does not necessarily mean that CRS ownership is an unfair method of competition or that additional regulatory action is required under section 411 of the Federal Aviation Act.

QUESTION 3: Given the magnitude of those revenue transfers, what role do you believe that CRS ownership played in the post-CAB sunset wave of airline mergers?

ANSWER: Clearly, CRSs provide the air carriers affiliated with them with a competitive advantage; and carriers' perception of the magnitude of this advantage can have an influence on their decisions about mergers and acquisitions. Our study did not address this issue directly, although several of the airline mergers that have occurred were not influenced by CRS concerns. For example, neither Republic nor Northwest owned a CRS when they merged. Moreover, Piedmont and USAir, two airlines that do not own a CRS, chose to merge with each other rather than with a CRS-owning airline.

QUESTION 4: The early years of deregulation were characterized by many new competitors, some of which grew quite dramatically. In recent years, however, there has been little new entry, and most of the existing new entrants have ceased to exist. Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

ANSWER: The Department's CRS study demonstrated that the vendor airlines benefit from the "halo effect" they secure by automating travel agents. A new entrant that had to compete with a CRS-owning airline would have to find a way to overcome this disadvantage -- for example, by offering travel agents override commissions or by offering travelers better service at a lower fare. While it may be difficult for a new entrant to overcome all the competitive advantages that many major airlines enjoy, these advantages are not insurmountable; indeed, carriers such as Midway, Southwest, America West, and the New Braniff have remained vigorous competitors even though they compete against airlines that own CRSs.

It is also important to recognize that CRSs have procompetitive effects. By providing a large number of travel agents with information on the fares and services available from new entrant air carriers, CRSs may very well make it easier and less costly for a new entrant to enter and market and compete successfully with established airlines.

QUESTION 5: It appears from the data in the DOT report (see especially Tables 4.2 and 4.12) that the dominance of the two largest CRS vendors is generating a revenue transfer from other airlines of $1-$2 billion per year ($1 billion if the vendors' estimate of the "halo" is correct, $2 billion if the Department's estimate of "halo" is correct). Is it the position of the Department that transfers of that order of magnitude have no adverse impact on airline competition? Why did the report fail to aggregate the various calculations that it made into a single estimate of the revenue transfer? Why did it fail to appraise the significance of those transfers for airline competition and the public interest?

ANSWER: The Department's report did not report an estimate of the net revenue transfer to any individual CRS vendor or appraise the significance of such transfers for several reasons. As we discussed in our answer to Question 1, it is not possible to make reliable estimates of such transfers.

Each vendor airline participates as a customer in the other four systems. Because of this participation, there is a complex pattern of booking fee payments and incremental revenue shifts between the various vendors. Without detailed information on the booking patterns of individual agents and on the characteristics of local CRS and air transportation markets, it is not possible to estimate net revenue transfers to the largest vendors, although it is obvious that all vendors will receive some "revenue transfers" from non-vendor airlines. Nevertheless, even before taking other factors into account, we are confident that any net revenue transfer is substantially below the $1 to $2 billion figure stated in your question.

In addition, any attempt to estimate net revenue transfers, whether based on incremental revenues or on booking fees, must reflect cost considerations. As discussed in response to Question 1, it is difficult to estimate these costs reliably, and it would be of dubious validity for a federal agency to attempt to define the "correct" allocation of costs even if we could.

More important than the difficulty of measuring net revenue transfers accurately, the magnitude of CRS generated net revenue transfers may not provide a useful measure of these systems' effects on competition among airlines. CRSs undoubtedly provide their owners with competitive advantages over other carriers, especially those without CRSs. Non-vendor airlines, however, may enjoy other competitive advantages. Precisely how these advantages interact will also depend on the particular characteristics of the individual local markets in which the vendor airlines compete as both vendors and airlines. In these circumstances, an estimate of CRS generated net revenue transfers standing alone would not be a particularly useful indicator of how CRSs affect airline competition.

QUESTION 6: Various airlines, travel agent groups, and others have made in recent months suggestions to DOT with respect to regulatory actions which they believe should be taken to reduce the dominant vendors' market power. Would you please list for us without necessarily identifying the source, what specific suggestions were made for DOT consideration. Did your Department consider each of these proposals? May we have DOT's evaluation of the proposals made to it? Were there any other proposals internally developed which were considered? If so, what was DOT's evaluation of each of those?

ANSWER: A wide range of proposals for remedial action have been presented to the Department, and the Department's staff have discussed additional remedial actions. A travel agent group has filed two petitions asking us to modify the rules governing travel agent contracts. In the first, the travel agents proposed a rule requiring standard contract terms to correct practices that they perceive enhance the vendors' market power and practices they consider to be abuses of market power. The second petition focused primarily on practices allegedly designed to enhance market power. The travel agents have asked the Department to limit CRS contract terms to three years (as opposed to five under the current rules); prohibit liquidated damages, minimum use, and rollover clauses; and prohibit parity requirements. A smaller vendor has filed a petition dealing with the same alleged abuses. In addition, five pending enforcement complaints raise allegations concerning vendors' practices in this area. The Department is reviewing all of these petitions and complaints.

A smaller vendor has proposed in informal discussions that we adopt rules establishing minimum standards of functionality for CRSs. This vendor contends that the large vendors continue to make it easier for agents to process bookings for their airline affiliates' services than for services of other carriers and that this practice is a major cause of the halo effect. This vendor also advocates further regulation of subscriber contracts along the lines outlined above; it also requested that we prevent vendors from offering travel agents CRS incentives that are linked to air transportation, such as free tickets or free airline club memberships that the agent can give to his or her customers.

A group of CRS-participating airlines has suggested rules that would require vendors to allow their subscribers to switch between the data bases of competing systems using a single set of equipment, arguing that if agents could do this, it would be easier for airlines to persuade agents to book their flights through a CRS that charges lower booking fees. According to these carriers, this action might introduce competitive pressures on the level of booking fees. In addition, some parties have advocated binding arbitration that would be available to travel agents and participating carriers who believed that vendors were violating some standard of equity.

DOT's staff also considered a number of options, including divestitures; some form of rate regulation, such as the imposition of a "reasonable" fee requirement, the so-called "zero booking fee" regulation, or a variation, a booking fee cap; and granting antitrust immunity to participating carriers so that they could negotiate with each vendor as a group.

Each of the "remedies" outlined above has its problems. The first problem, common to all of them, is that it is unclear whether government intervention is necessary or justified. There can be little doubt that CRSs provide their owners with competitive advantages. As we have pointed out elsewhere, however, non-vendors may be able to counter CRSs with other competitive advantages. In these circumstances, we are not prepared to say that the competitive advantages of CRS ownership, whatever they may be, require further regulation of CRSs under section 411 of the Federal Aviation Act.

A second generic problem with the various remedies is the dynamic nature of the industry. Competition among vendors for subscribers continues to spur rapid technological development and has apparently produced vigorous conversion activity. The ownership structure of the industry is transforming itself as well, with a number of airlines purchasing interests in CRSs that were previously marketing arms of a single airline. In trying to hit the "moving target" of purportedly unfair CRS practices, regulatory intervention could kill healthy development instead.

In addition, any regulatory action would involve costs of one kind or another. For example, "minimum" standards of functionality could require a cumbersome oversight and enforcement mechanism and might end in limiting new development to a lowest common denominator. Administration of a reasonable fee requirement would impose on vendors and the government the costs of prosecuting rate proceedings, and the requirement could produce substantial distortions in the CRS market. Binding arbitration of disputes over such matters as the reasonableness of fees would produce the same kinds of distortions. A "zero fee" requirement could substantially disrupt the travel agent industry by requiring a fundamental change in the relationship between the agents and their airline principals. Divestiture could eliminate many economies gained from the sharing of facilities and personnel between vendors' internal and external reservation systems and might have no effect on the level of fees. The mandatory "switch" proposed by several CRS participating airlines might impede the forms of development, could present difficult legal problems, and might not have the intended effect of lowering fees. Finally, antitrust immunity is a dangerous remedy that could have unforeseen anticompetitive consequences, especially given that a number of the participating airlines who would be given immunity are also vendors. Since it is not clear, based on the report, that the competitive advantages of CRS ownership require additional regulatory action, there is a substantial risk that the costs of such action would outweigh any benefits.

The pending rulemaking petitions squarely raise the question of whether there is a need for additional CRS regulation, and we will consider that issue carefully before acting on the petitions.

QUESTION 7: If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal, or proposals, if any, would you regard as most effective and appropriate for adoption by DOT?

ANSWER: The Department has sufficient statutory authority to regulate the CRS industry and to ensure that these systems are not used to restrict competition in the airline industry. It is also important to recognize that the Department has taken action to prevent CRSs from being used in an unfair manner. For example, the Department worked to eliminate "secondary screen" display bias. We also worked to get the CRS vendor airlines to eliminate rollover provisions in their agency contracts. Currently, we are reviewing several petitions and complaints to change key provisions in the contracts between vendor airlines and their travel agency subscribers.

At this stage in the evolution of the CRS industry, we believe it is appropriate to proceed cautiously before adopting any regulation that would reduce the vendors' incentives to upgrade or market their systems or would lead to higher costs for participating airlines or subscribers. For example, the regulation of CRS booking fees would involve substantial costs and could lead to inefficiencies. Such regulation would involve lengthy and complex proceedings, and would require ongoing reports and the monitoring of the vendors' costs and revenues. As our study demonstrates, determining vendor costs and revenues is an uncertain process, involving numerous arbitrary allocations and assumptions. In addition, vendors' costs vary substantially. If fees are set for each vendor, there will be multiple proceedings; there will also likely be different fees for each vendor, arbitrarily imposing advantages or handicaps in the market. As discussed in Question 6, other regulatory "solutions" to the CRS "problem" would also have undesirable consequences and would thus result in inefficiencies.

QUESTION 8: What is your position on whether minimum use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

If you believe that it does have such an effect, do you think that DOT should take action to clarify that Section 255.6 of DOT's regulations precludes the use of minimum use clauses?

ANSWER: For several reasons, minimum use clauses can reduce the number of subscribers with more than one system. By committing a subscriber to use its first CRS actively, minimum use clauses limit the volume of business available to be booked through a second system and thereby may make the costs of a second system exceed its expected benefits. Minimum use provisions also impose disincentives to use a second system. The principal disincentive is that failure to meet the monthly minimum is grounds for terminating the contract by the vendor and imposition of liquidated damages. Since an agent may not know for certain whether it has met its minimum until the end of the month, there is a strong incentive to make all bookings on one system.

Whether these disincentives to the use of a second system amount to a prohibition on the use of alternative systems, in violation of Part 255, or are an unfair method of competition, in violation of section 411 of the Act, are issues raised in several pending proceedings and, therefore, is a question the Department is actively pursuing. Three third party complaints that directly address the minimum use provisions have been filed by smaller vendors. One of the vendor complaints focuses almost exclusively on such clauses. The other two complaints, filed by another smaller vendor, view minimum use as a part of the overall strategy of the dominant vendors to retain their current agent base. The complaints allege that the other elements of that strategy include liquidated damages, rollover provisions, and architectural bias in displays and functionality. A fourth complaint (Docket 45593), from a travel agent, addresses a minimum use clause in a prospective supplemental vendors's offer. A fifth complaint from several travel agents alleges a campaign on the part of a vendor to monopolize a local market. The tying of commissions and other benefits to CRS use is alleged to be part of that campaign. There are three pending rulemaking petitions before the Department that urge specific prohibition of such provisions as part of a comprehensive revision of Part 255.

QUESTION 9: Has DOT addressed the question of what effect, if any, inhibition of conversion efforts resulting from restrictive contractual provisions has had on CRS competition or airline competition? If so, what conclusions have you reached?

On page 135 of the May 1988 CRS report, DOT suggests but does not resolve certain pertinent questions relative to whether the new restrictive subscriber contract clauses are unfair competitive practices and what the effect on air transportation competition might be if they were barred. For example, the Department states, "The question here is whether the benefits of these contracts (or particular provisions) are outweighed by a purpose or effect that unreasonably restrains competition." Obviously that is the question; what is the answer? The Department has the statutory responsibility to prevent "unfair methods of competition in air transportation or the sale thereof" (Section 411 of the Federal Aviation Act). Having raised the appropriate questions about CRS contracts, does the Department take the position it has no obligation to provide the answers? If not, what is the Department's position on whether these contracts contain elements which unreasonably restrain competition?

ANSWER: Again, this is a question being actively pursued on the basis of the pending rulemaking petitions and enforcement complaints referred to in Question 8. As the CRS study found, however, minimum use clauses, rollover provisions, and five-year contract terms, combined with liquidated damage clauses based on booking fees, may protect a vendor's existing subscriber base from competition from other vendors. But when a vendor sets its fees to subscribers in the expectation that the CRS installation will generate booking fee revenue, is it unreasonable for the vendor to take some actions to protect those expectations? Moreover, competition for subscribers appears to be vigorous even with these clauses in subscriber contracts. In short, the question of whether "the benefits of these contracts ... are outweighed by a purpose or effect that unreasonably restrains competition" cannot be readily answered. Nevertheless, the rulemaking petitions and the pending enforcement complaints raise that question, among others. The Department will be addressing such questions when it rules in these proceedings.

It should be noted, however, that any action the Department might take to "open up" travel agent CRS contracts will not necessarily improve airline competition. The CRS is a joint product being sold in two markets. A travel agent can realistically choose from among any of the five vendors, but airlines perceive that they must participate in all CRSs. Moreover, there is apparently no readily available means for participating air carriers to persuade agents to obtain or use a particular CRS because of the level of that CRS's booking fees. Therefore, still more vigorous competition for agents will not necessarily act as a restraint on booking fee levels.

The Department's study also suggests that CRS ownership may confer competitive advantages to the vendor in the form of the halo effect without regard to booking fee income in those markets where they have a high market share (although for reasons discussed in our response to Questions 1 and 5, it is extremely difficult to estimate such benefits precisely). It is not clear that opening up competition for travel agents would dissipate these advantages. Moreover, the smaller vendors would still have economic incentives to concentrate their CRS expansion efforts in those markets where they have an airline market presence. The public policy benefits of making it easier for vendors to attain CRS dominance at hubs where they have airline dominance are questionable.

QUESTION 10:	In general, the DOT report contains a wealth of important information about CRSs and their impact on airline competition. Among the major points which emerge from the report are (1) the dominant CRS vendors have and exercise significant monopoly pricing power, reflected in the fact that they charge other airlines at least double what it costs to provide the service; (2) the dominant CRS vendors enjoy extraordinarily high profits from their CRS operations (internal rates of return estimated by DOT at 108.9 percent and 129.5 percent for APOLLO and SABRE, respectively), producing revenue transfers among airlines of \$1-\$2 billion per year; and (3) other airlines may be barred from making their own competitive responses (i.e., successfully marketing their own CRSs), and travel agents may be barred from freely choosing among CRSs, by a variety of agent-vendor contract clauses which may have an anticompetitive effect or purpose. Obviously, these points raise major concerns about trends in the degree of competition among airlines, concerns which affect the interests of consumers, airlines, travel agents, and which ultimately threaten the viability of deregulation. Yet the Department, despite the wealth of information in its report, has chosen to draw no conclusions and has thus far chosen to take no action. Is that because the Department has concluded that no action is warranted, or does the Department have a plan of action, and, if so, what is it?

ANSWER: The Department's CRS report was intended to gather facts, assess the state of competition in the CRS industry, and evaluate the influence of CRSs on competition among air carriers; it was not intended to be a policy document or to serve directly as a justification for further CRS regulations.

The Department has taken action to eliminate certain vendor business practices that were contrary to the spirit and letter of our CRS rules. For example, the Department took enforcement action against a vendor that introduced biased fare displays and was instrumental in getting vendors to eliminate secondary screen bias and to remove rollover provisions in their subscriber contracts. We are now reviewing petitions and enforcement complaints from the American Society of Travel Agents, individual travel agents, and smaller vendors that ask the Department to modify several of the key features in the contracts between CRS vendors and their subscribers.

It is also important to recognize that there are a number of very healthy developments taking place in the CRS industry. The industry is continuing to undergo rapid technological change, spurred in part by intense competition for travel agency business. The industry is also becoming more competitive and responsive to the needs of its subscribers. For example, according to a recent survey (Travel Weekly, July 29), more than 90 percent of all agents are satisfied with the CRS they have chosen. Moreover, the smaller systems are expanding rapidly. In fact, according to the same survey, more than one in ten agency locations has switched primary reservation systems in the past two years.

Other promising developments are taking place as well. United's recent sale of 50 percent interest in the APOLLO system to a group of domestic and foreign airlines highlights a recent trend toward the separation of airline and CRS operation. Also, the CRS industry is becoming more "international," with foreign and domestic air carriers combining in consortia to provide CRS services in Europe and Asia.

Because of the Department of Justice's (DOJ's) expertise in analyzing complex competitive issues, the Department forwarded a copy of its CRS report to DOJ for its review. The Department would, of course, consider any comments DOJ submitted regarding the report or on supplemental regulations the Department should adopt to govern the CRS industry. As always, the Department will consider petitions from interested parties on what remedial actions, if any, we should take vis-a-vis the CRS industry.

QUESTION 11: In the last year, has DOT had any discussions with the Office of Management and Budget on rulemaking to deal with CRS problems? If so, what are OMB's views on the desirability of such rulemaking?

ANSWER: The Office of Management and Budget was aware that the Department was preparing a study on the CRS industry. Our study was designed to gather facts about the CRS industry and to analyze the data provided to us by the vendors; it was not designed to serve directly as a justification for further CRS regulations. The OMB did not place any restrictions on our study. Nor has OMB attempted to influence the Department's thinking on the desirability of a CRS-related rulemaking proceeding.

ADDITION TO THE RECORD

STATEMENT OF AMERICAN AIRLINES, INC. BEFORE THE SUBCOMMITTEE ON AVIATION OF THE HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

SEPTEMBER 1988

American Airlines, Inc., which owns and operates SABRE, the most widely used airline computer reservations system in the U.S., wishes to respond to a number of the questions Chairman Mineta submitted to the Secretary of Transportation on July 13, 1988, in connection with the Department's CRS Study issued in May 1988.

Before addressing those questions, however, American wants to place the issues at hand in the proper perspective.

There are several competing constituencies here, including travel agents, small CRS vendors, non-vendors, and large vendors. Each has differing views of the state of competition in the CRS industry.

Travel agents want to have CRS services at the lowest possible cost, and at the same time they want freedom from contract provisions that require use of a particular CRS for a minimum number of bookings, provide for liquidated damages in the event of contract breach, or require a five-year term. As we show in detail below, travel agents will not continue to enjoy low costs for CRS if the contract provisions that allow for low costs are barred.

Smaller vendors want to be able to raid the travel agent accounts that American won based on the superior merits of SABRE. Therefore they claim that existing contracts are a restraint on competition. Once the contracts that American won are swept aside, they will then link their dominance of regional air transportation markets to their CRS business. This is an improper linkage, and the Subcommittee should be extremely reluctant to recommend any action that might encourage this.

Non-vendors want to reduce the booking fees they pay to CRS vendors; in fact, they want to pay no booking fees at all, but have the entire cost burden taken over by travel agents.

American, one of the largest vendors, believes that the marketplace is working, and that no legislative or regulatory intervention is warranted. There is presently an appropriate balance of fees paid by both categories of CRS beneficiaries -- travel agents and airlines -- and there is no compelling basis for changing the deregulated environment.

In their testimony presented to this Subcommittee on September 14, 1988, the Department of Transportation and the General Accounting Office have essentially reached the same conclusion -- each of the proposals that travel agents and certain airlines have brought forth for regulating CRS contracts has serious drawbacks. In American's view, the various proposals, if adopted, would damage CRS competition, travel agents -- and consumers.

Consumers greatly benefit from the advances in functionality of CRS facilities that are a direct result of the keen competition fostered by the marketplace. Consumers would not be helped by the government regulation of CRS contract terms. They could be seriously damaged by the various rulemaking proposals which, as discussed below, may well result in increased travel agent concentration. This is a fight among vendors and users, and the only real issues are (1) how the costs of CRS are going to be divided, and (2) whether smaller vendors that dominate regional hubs are going to be encouraged to use that dominance improperly.

Just as this dispute is about categories of CRS users and beneficiaries and a fight over who will pay what proportion of the costs, it is also about competition in the airline industry among the new generation of large carriers. Three of these carriers have been recently formed through mergers -- Texas Air, Delta, and Northwest -- and are relative newcomers as CRS vendors.

None of these carriers undertook the risks of CRS development when that business was new and uncertain. Each has a CRS system which is inferior in functionality and market acceptance to American's SABRE system. And each wants to drive all competing CRSs from the areas of the country where it dominates air transportation.

In this respect, the issue before the Subcommittee is not whether the smaller vendors need legislative help in order to compete in the CRS business, but whether carriers with far greater regional market shares than American has should be allowed to drive all competing CRSs out of their areas of domination.

Turning to the questions in the Chairman's letter, American's position is outlined in the following responses.

1. Net revenue transfer to American. There has been little if any net revenue transferred to American be-

cause of its ownership and operation of SABRE, either before the CRS rules went into effect in 1984, or since then.

To the extent the Subcommittee is suggesting that booking fees represent a revenue transfer, we disagree. Booking fees are a payment for a valuable service rendered, and no more constitute a revenue transfer than payment for numerous other inter-carrier services, such as ground handling or gate leases.

American has not achieved significant net airline incremental revenue because any incremental passenger revenue that American may have earned because of SABRE was substantially offset by the revenue it lost to competing CRSs, as DOT recognized in its testimony. CRSs were launched as a result of competitive forces; American created SABRE to meet the competitive threat posed by other airlines' CRSs. For this reason, American believes that it is inappropriate to measure incremental revenue solely on the basis of the gross traffic American may have gained through SABRE while ignoring traffic American may have lost to other CRS vendor airlines.

It is true that American enjoys some measure of "halo" revenue from SABRE, but this is an entirely legitimate reflection of the good relations between American as a vendor and the travel agents it serves. Halo is simply the difference between the share of bookings that American would otherwise get in a travel agency, and what American actually gets. Even without the halo effect, American traditionally has a share premium over other airlines, for a number of reasons. American is widely recognized by the public as offering a superior product. American is the industry leader in most consumer polls, has the best on-time performance of all major airlines, offers a desirable frequent flyer program, and has always been extremely competitive on fares. The incremental revenue American gains from its superior service, as well as from halo, is not a revenue transfer from the rest of the industry, but is a share premium American has legitimately earned.

We note that DOT has recognized that any calculation of a vendor's incremental revenue must include not only the gains in its own system, but its losses to the systems of other vendors (DOT Response, p. 1). Unfortunately, GAO's anaylsis was less thorough because it was asked a different question -- Question 3a asked only about the net revenue transferred to American and United from other carriers, and not about the other half of the equation.

2. Effect of revenue transfer on airline competition. As stated above, American does not believe that SABRE has caused a net revenue transfer to American from the rest of the industry. But even if such a revenue transfer is alleged, it is inconceivable that this would have any effect on scheduling, fares, equipment decisions, or decisions on cities and markets to be served.

Booking fees represent less than 2 percent of the value of the average coupon generated by a CRS. Travel agent commissions, by contrast, are 10 percent or more for domestic tickets, and even higher for international sales. Yet there have been no allegations that travel agent commissions adversely impact airline competition.

The lack of CRS impact on airline competition is also shown by the consistent profitability of non-vendor airlines including USAir, Piedmont, Southwest, and Midway, among others.

No reasonable carrier would premise its scheduling, fares, or equipment decisions on CRS. Aircraft availability, route structure, and labor costs drive these decisions. The major phenomenon of deregulation is not CRS, but the development of hub and spoke systems which have enabled carriers to combine traffic flows and operate at higher load factors. CRS is only one very small element of the overall airline business.

In its response of September 9, 1988, to the Subcommittee's questions, DOT was "unable to say exactly what that competitive impact of CRS ownership is" (p. 4). GAO, however, asserted in its reponse that revenue transfers "would be likely to affect all these elements of airline competition" (p. 2). GAO's position is wholly unsubstantiated. In any event, the net revenue transfer to SABRE must be compared with American's total 1986 revenue of about $6 billion, and industry total revenue that year of about $48 billion. The transfer GAO alleges could not plausibly have a significant impact on airline competition.

3. Role of CRS in airline mergers. American does not believe that CRS played a significant role in the post-CAB sunset wave of airline mergers. While carriers coming to Washington to give excuses for their mergers may claim that CRS was a major factor, the true motive in most cases has been the desire to gain control over massive single-carrier hubs.

In at least three important mergers -- USAir/Piedmont, Northwest/Republic, and Southwest/Muse -- neither of the merger partners owned a CRS. In other mergers -- Texas Air/Eastern, TWA/Ozark, and Delta/Western -- the desire for access by the non-vendor partner to a CRS may have been alleged in the pleadings, but American believes that other motives, chief among them hub dominance, far outweighed the CRS aspect. CRS is simply not a driving force in mergers, any more than it is a driving force in carrier decisions on scheduling, fares, or equipment. In their responses to the Subcommittee, neither DOT nor GAO could conclude that CRS had a significant part in airline mergers. GAO said "We are uncertain how significant this role was" (p. 2).

4. Effect of CRS on new entry. CRS has had a major beneficial impact on new entry by allowing new airlines access to many thousands of travel agencies which instantly place their schedules and fares in inventory. Absent such access, new entrants would find it far more difficult to display their product to travel agents.

In its response, DOT recognized that CRSs have procompetitive effects: "By providing a large number of travel agents with information on the fares and services available from new entrant air carriers, CRSs may very well make it easier and less costly for a new entrant to enter the market and compete successfully with established airlines" (p. 6).

GAO, by contrast, suggested in its response that it "seems likely" that "market power of CRS vendors" inhibits new entry and threatens the ability of new entrants to survive (p. 3). But GAO provided no substantiation for this claim, and has no basis for making such a statement when, as it admits, "the size of this impact is uncertain" (id.).

It is true that in recent years new entry has slowed, and a number of new entrants have gone out of business. But this cannot be linked to CRS. In the wake of well-founded concerns by DOT over the undercapitalization of many new entrants, and the impact on consumers of unreliable operations, DOT has tightened the standards initially used by the CAB in the late 1970s and early 1980s for approving applications by start-up companies. DOT has also purged scores of inactive certificates awarded to new entrants in order to protect the public from unfit operators.

Failure of new entrants which did commence service has resulted from lack of capital and bad management decisions, and has had nothing to do with CRS. For example, the failure of Air One was caused by its all first-class configuration, and its attempt to compete at a hub -- St. Louis -- already dominated by TWA and Ozark. The failure of Air Atlanta was caused by its decision to conduct operations at a major hub -- Atlanta -- already dominated by two of the largest U.S. carriers, Delta and Eastern. In both cases, the incumbents had the support of downline traffic flow unavailable to new entrants, and could operate at much higher load factors. American is not aware of a single new entrant failure that can plausibly be linked to CRS.

5. The CRS Study's halo estimate. American disputes the estimate in the Subcommittee's question that halo generates a revenue transfer to the two largest CRS vendors of $1 to $2 billion per year.

The DOT Study created two different halo estimates. The first is based, in American's case, on internal documents prepared prior to adoption of the rules eliminating display preference in 1984. Those studies were crude, and American was well aware of their limitations. The Department has ignored American's clearly expressed reservations, and has given these studies more credence than American ever did.

American has conducted subsequent studies comparing share premiums before and after the effectiveness of the CRS rules, which demonstrate that display preference had little if any effect in generating incremental revenues.

DOT's second estimate of halo is based on a regression analysis which is fraught with conceptual and technical errors. In particular, DOT has attempted to measure halo by comparing share of departures with share of revenue booked on the carrier by travel agents at a particular city -- a methodology which vastly overstates the amount of halo revenue assigned to American. Both are arbitrary measures which fail to reflect American's superior service quality, yield management, frequent flyer program, and numerous other factors which enable American to gain passengers (and revenues) far in excess of its pro-rata share of departures.

These matters are detailed in the attached paper prepared by American, "Review of Halo Effect as Defined in the DOT Computer Reservation Study" (Tab 1). We also note that GAO has expressed doubts about the DOT regression analysis (Response, p. 13).

In its response to the Subcommittee's questions DOT cautioned against assuming that there is a net revenue transfer in the range of $1 to $2 billion, explaining that:

> "Each vendor airline participates as a customer in the other four systems. Because of this participation, there is a complex pattern of booking fee payments and incremental revenue shifts between the various vendors. * * * [I]t is not possible to estimate net revenue transfers to the largest vendors, although it is obvious that all vendors will receive some 'revenue transfers' from non-vendor airlines. * * * [W]e are confident that any net revenue transfer is substantially below the $1 to $2 billion figure stated in your question.
>
> In addition, any attempt to estimate net revenue transfers, whether based on incremental revenues or on booking fees, must reflect cost considerations. * * * [I]t is difficult to estimate these costs reliably, and it would be of dubious validity for a federal agency to attempt to define the 'correct' allocation of costs even if we could" (p. 7).

Moreover, halo revenue has existed for many years, and the industry has long since adjusted to it. Despite halo revenue, non-vendors such as USAir, Piedmont, and Southwest have earned substantial profits, while vendors such as Eastern and TWA have experienced prolonged periods of financial difficulty. Halo cannot be viewed as having an adverse impact on airline competition.

In its discussion of halo, the GAO response alleges that incremental revenues "limit competition in the airline industry by giving CRS-owning airlines an artificial competitive advantage" (p. 3). As we have shown above, halo is the natural result of the favorable view of American that SABRE creates with travel agents, and there is nothing artificial about it, contrary to GAO's statement.

6. Rulemaking proposals. The American Society of Travel Agents and Texas Air recently filed petitions for rulemaking at DOT to amend the CRS rules to add burdensome and unnecessary restrictions on the ability of vendors to contract with travel agent subscribers for CRS services and equipment. These petitions ask DOT to prohibit minimum use provisions, liquidated damages, and five-year terms. DOT should do none of this.

Vendor-subscriber contracts today are relatively free of government interference, and the results have been dramatically pro-competitive. Driven by market forces rather than bureaucratic rules, intense competition for travel agent business by five CRS vendors has kept charges to travel agents at extremely low levels. This fierce competition has also led to significant shifts in market shares; in the last three years, American's share of CRS locations has declined from about 43 percent to 37 percent, and in the space of two years Texas Air's number of CRTs installed more than doubled. The CRS industry is highly competitive and dynamic. There is simply no sound basis for DOT to engage in a rulemaking to restrict CRS contract terms between vendors and travel agents.

If the restrictions being sought at DOT were adopted, without doubt the prices paid by travel agents and airlines for CRS will significantly increase. Absent the ability to forecast revenue flows through minimum-use provisions, absent the security of contract compliance provided by liquidated damages clauses, and absent the certainty of a minimum five-year contract term, there is simply no way that CRS vendors could continue to offer the low prices to travel agents that prevail in the marketplace today.

American's comments opposing the ASTA and Texas Air rulemaking petitions, setting forth in greater detail American's position on minimum use, liquidated damages, and five-year terms, are attached (Tab 2).

7. The "market power of the dominant CRS vendors." In framing this question, the Subcommittee assumes that Ameri-

can has market power with respect to CRS. This is simply not so.

The five CRS vendors are locked in a fierce competitive battle for travel agency placements. Travel agencies are able to play vendors off against one another in negotiating for the best deal, and as a result prices paid by agencies for CRS have declined to very low levels. At the same time, booking fees charged to participating carriers are the same in all five systems, a further indication of the lack of market power of American and United.

Moreover, the American and United shares have been shrinking. Relatively new systems, such as Texas Air's, have grown in their share of travel agency installations and bookings, while the two original vendors have seen theirs decline, and their shares are projected by DOT to decline further, as shown in Table 4.5 of DOT's CRS Study.

In the period 1985-1987, Texas Air's locations increased by more than 60 percent, from 4,221 to 6,764, and its CRTs more than doubled, from 12,041 to 25,127. No wonder that Eastern's president recently stated that Texas Air "had catapulted [SystemOne] from a second-rate player with 11 percent of the market to a major factor enjoying nearly 20 percent of the domestic travel agent market" (Aviation Daily, March 9, 1988, p. 370).

As DOT pointed out in its study, "the CRS vendors compete vigorously with each other to provide subscribers with state-of-the-art computer software and enhancements" (p. 28). Between 1983 and 1986, when the market for travel agent subscribers was supposedly "saturated" and American allegedly "restrained" SystemOne from competing for travel agent subscribers through its contracting practices, SystemOne increased its share of revenues at 20 of 26 large hubs and 25 of 31 medium hubs. In contrast, SABRE lost share at 21 large hubs and 17 medium hubs. In fact, SABRE's share declined by more than 10 percentage points at each of 10 large hubs, as shown in the DOT Report (p. 6). SystemOne's achievement, accomplished by a late entrant with an inferior system, destroys any argument that SABRE has market power -- which is the power to exclude competition from the market and to raise prices above competitive levels.

The market power this Subcommittee -- and DOT -- should instead be concerned about is that held by Texas Air, Northwest, and Delta at their regional hubs. Today each of these carriers is abusing its market power by pressuring local travel agents to convert to its CRS with naked threats that the agents will not be able to survive in the marketplace without using the CRS of the carrier dominating the regional market.

Numerous trade press articles have documented Texas Air's activities to use its regional dominance to coerce travel agents to convert to SystemOne. For example, on August 29, 1988, Business Travel News reported that Eastern is offering exclusive ticket discounts of up to 50 percent off coach fares to corporations in the Southeast -- where Eastern is a dominant carrier -- if they switch to travel agencies that use SystemOne (Tab 3). On September 1, 1988, 22 Utah travel agencies filed a complaint at DOT against Delta (Docket 44796) alleging that Delta is abusing its market power at the Salt Lake City hub -- where Delta controls over 70 percent of all flights -- by granting preferential treatment to agencies that subscribe to Delta's CRS (Tab 4). The complaint against Delta is similar to one filed last April at DOT by Hanover Travel, a Memphis travel agency, against Northwest and the CRS it jointly owns with TWA (Docket 45593), alleging that Northwest is abusing its market power at the Memphis hub -- where Northwest controls some 84 percent of all flights -- by using coercive and threatening tactics, including illegal "parity" demands, to force Memphis area agencies to take PARS (Tab 5).

In its CRS Study, DOT warned that "if the correspondence between air transport market share and CRS vendor market share were to increase in regional markets, there might be cause for concern" (p. 136). The blatant attempts by Texas Air, Delta, and Northwest to use their regional hub dominance as a weapon to force their CRSs on travel agents is indeed a cause for concern, and should be the focus of a major inquiry by the Subcommittee and by DOT.

8. Minimum use. DOT should take no action that would prohibit minimum use provisions in CRS contracts between vendors and travel agents. There can be no question that minimum use clauses serve valid business functions and act to reduce the monthly charges travel agents pay for CRS.

CRS is a joint product, which provides benefits in fixed proportions to different types of users. Like a newspaper, pricing of a CRS system can vary to different beneficiaries. For example, a newspaper can charge a high subscription price to consumers, but relatively low advertising rates to advertisers. Alternatively, it can increase circulation by giving away the newspaper, and thereby justify higher advertising rates. Like producers of other joint products, CRS vendors must find the appropriate balance between the various users of the system in order to conduct profitable operations.

During the early days of CRS, travel agents were the major source of revenue to CRS vendors. They paid fixed monthly rates for rental of the systems, and the airline recipients of bookings received a free ride. Much of the regulatory debate of the last five years has occurred because this balance shifted so that carriers were paying a higher share of CRS costs through booking fees. With the adoption of the CRS rules in November 1984, the pendulum swung dramatically as booking fees became the major element of revenue and competitive forces drove down prices to travel agents. Only by ensuring a flow of income from booking fees can such low subscriber rates be justified.

Under these circumstances, American began to include minimum use clauses in its standard CRS contracts with agents. Since the price to the agency was based on the expectation that it would use the systems to generate booking fee revenues for the vendor, such clauses are entirely reasonable. American's clause requires only that each SABRE terminal be used to generate a minimum of 100 bookings a month, or three quarters of the agent's monthly average bookings during its initial period of operation, whichever is greater. There is, of course, no requirement that any share of the bookings be made on American or any other particular carrier. Thus, the clause is entirely CRS related, and has no competitive impact on air transportation.

Without a minimum use clause, American could not offer SABRE to travel agents at the low prices that they now receive. The minimum use clause, therefore, has a legitimate business rationale, and contrary to ASTA's allegations cannot be found to have an anticompetitive purpose.

Prohibition of minimum use clauses would create a basic change in the current CRS price structure. By reducing the certainty of recovery of booking fees, the Department would increase the risk faced by the CRS vendors with respect to future profitability of their operations. Any future reduction in profits can be offset only by increases in booking fees or travel agent subscription charges. As DOT noted in its Study, "It is unclear whether or how action to alleviate restrictions on competition for subscribers can be expected to have a substantial beneficial effect on booking fees" (p. 135).

9. Effects of "restrictive contractual provisions" on competition. The so-called "restrictive" clauses -- including minimum use, liquidated damages, and five-year terms -- benefit competition, and their elimination would have an adverse impact on travel agents, vendors, and airlines.

As American explains in its comments opposing the rulemaking petitions at DOT (Tab 2), there is no question that without the assured revenue stream provided by the contract provisions under attack, prices paid by travel agents for CRS will rise. These higher charges will be paid by travel agents, or carriers, or both. Travel agents may think that vendor competition will result in maintenance of current price levels to them, but this is a false hope. Since all vendors will be subject to the same regulations and to the same pressures to increase prices to offset the effect of the rules, charges to travel agents will inevitably increase. Another result of the prohibition of miniumum use, liquidated damages, and five-year terms is that the cost burden will shift to higher booking fees. The only alternative to higher charges, paid either by travel agents or by airlines, is reduced profitability to vendors, sapping the incentive for the enhancements that have made the U.S. CRS industry the world leader in technology.

Assuming that there are price increases to travel agents rather than reduced profitability to vendors, this would lead to greater concentration in the travel agent market, as smaller agencies become unable to afford CRS and are driven out of business, and as travel agencies combine in order to gain greater bargaining power against vendors. In its response, GAO acknowledged that "[v]endors could compensate for shorter contracts by charging higher prices to agents" (p. 7), but failed to address the impact of higher fees on travel agent concentration.

Secretary of Transportation James Burnley was recently quoted as saying that further Federal regulations on vendor-agent contract terms are not needed; "you have healthy competition among vendors to sign people [agents] up. * * * [W]e could do a lot more harm than good." Travel Weekly, August 22, 1988, pp. 1, 67. American submits that tampering with the present CRS price structure by prohibiting the contract provisions at issue in the rulemaking petitions would do substantial harm, and agrees with Secretary Burnley that DOT action is not warranted.

10. Vendor profits. American totally rejects the idea that the dominant CRS vendors exercise "monopoly pricing power," that they charge other airlines "at least double" what it costs to provide the service, and that they enjoy "extraordinarily high profits" with an internal rate of return for SABRE of 129.5 percent.

In the first place, the fact that each of the five CRS vendors charges identical booking fees thoroughly belies the notion that the dominant vendors have monopoly pricing power. If pricing were not affected by competition, there would be price differentials among the vendors; there are none.

Second, the DOT cost allocations cannot be supported because, as noted earlier, CRS is a joint product for which such allocations are totally inappropriate. Thus, the flow of benefits from CRS is produced simultaneously in fixed proportions, and cannot be produced separately. That is, a CRS airline booking creates a simultaneous flow of benefits to both the travel agent (and to its client) and to the carrier, and one cannot be produced without the other. Furthermore, there is no substitutability among these CRS outputs -- the quantity of travel agent bookings cannot be increased by means of reducing the quantity of carrier bookings because they are opposite sides of a single transaction. An analogous situation exists with respect to CRS hotel or car rental bookings. As with all such joint products produced in fixed proportions, costs cannot be assigned explicitly to any of the individual outputs.

In such circumstances, there are simply no mathematical formulae or economic principles which can be developed to determine the "correct" allocation of CRS costs among airlines, travel agents and ancillary service vendors -- just as there is no "correct" way to allocate a cotton producer's production costs among its fiber and cottonseed oil customers. Instead, prices are determined based on the relative demands of each of the users.

The allocation of CRS fees among user groups cannot be established *a priori*, but will result from the competitive process in the CRS market and will depend on the benefits each such group derives from CRS. Indeed, this allocation is precisely the function that competitive markets perform so well, while insuring that no subscriber pays more than CRS is worth to it and while permitting an adequate but not excessive return to CRS providers. So long as CRS continues to be offered by a workably competitive industry, there is no justification for government intervention with respect to CRS pricing.

The cost allocations DOT made in its Study in order to support its theory that American charges twice its unit costs are arbitrary and unsupportable. For example, DOT allocated 10 percent of the communication network operation costs to "reservations services" (i.e., airlines), and 90 percent to "subscriber services" (i.e., travel agents). This is arbitrary since airlines benefit just as much as travel agents do from communications between them. DOT allocated 100 percent of CRS product development costs to airlines, and none to travel agents. This is arbitrary since many product development efforts are directed toward benefiting the travel agent. DOT allocated other expense categories on a similarly arbitrary basis without providing any rationale, and failed to establish standard measures or a base case against which reasonable allocations could be assessed. Since CRS is without question a joint product, it is conceptually impossible to allocate particular cost categories to users. Thus, any calculation that compares one revenue source with only part of the costs of the joint product is invalid.

DOT's methodology for calculating SABRE's internal rate of return -- by including incremental revenue from halo -- is also flawed. As noted above, American believes it is wrong to measure incremental revenue solely on the basis of the gross traffic gained through SABRE. SABRE was developed to meet the competitive threat posed by other CRSs, and any incremental revenue American earned because of SABRE was offset by the revenue American lost to competing systems. Unfortunately, DOT's approach was to include incremental revenue, even while it acknowledged the deficiencies of such a methodology.

DOT also erred in assuming, for the period 1987-1992, that vendors' investments in computer capacity, communications equipment, and remote terminals will rise in proportion to increases in the number of bookings generated by each system. This fails to take into consideration new technological developments unrelated to bookings increases. In 1988, SABRE is replacing existing subscriber terminals with IBM PS/2 intelligent work stations. Total capital expenditures in 1988 are estimated to be almost double the amount spent in 1986, while SABRE bookings are increasing by only 17 percent. Another DOT assumption was that outlays for continuing development and enhancement of each system's capabilities will remain constant at the levels that prevailed during 1985 and 1986. This is also incorrect; SABRE's CRS development, maintenance, and enhancement expenses increased by more than 15 percent in 1987, and are estimated to increase by 38 percent in 1988.

American also wants to address GAO's profitability analysis. In its response to the Subcommittee on September 13, 1988, GAO states that a carrier's profit margin on incremental revenues "is likely to be closer to 80 percent than 5.6 percent" (p. 11). The only way that this is possible is if carriers routinely -- and over long periods of time -- operate their systems with substantial excess capacity, so that large numbers of additional passengers could be accommodated on existing flights at incremental costs of only 20 percent of revenues.

This assumption is clearly erroneous. GAO is suggesting that American could have increased its passenger revenues by $429 million in 1986 while its costs of serving those additional passengers would have been only $86 million. If this were true, then why would American have increased its capacity by 10 percent (measured in ASMs) from 1985 to 1986, during which time its operating profit averaged 7.7 percent of revenues? Why not just wait for the supposed $429 million in gross incremental revenues to materialize in 1986 and subsequent years, then watch the operating profit margin rise year after year?

The obvious answer is that a carrier cannot simply add large numbers of additional passengers without also adding more capacity, and such capacity expansion involves costs that are substantially higher than 20 percent of the added passenger revenues. On a larger scale, the entire industry increased its total passenger revenues from $35.5 billion in 1984 to $43.2 billion in 1987. Yet the industry's operating profit rate actually declined from 5.0 percent in 1984 to 3.9 percent in 1987, and operating profits declined from $2.0 billion to $1.9 billion. Why did the industry increase its capacity over this period by 28 percent when -- under the GAO's theory -- large numbers of additional passengers can generally be accommodated at an 80 percent profit margin?

One other simple calculation demonstrates the flaws in the GAO approach. If it were true that American achieved net incremental profits due to SABRE of $342.9 million in 1986, then in their absence, American would have earned an operating profit of only $49 million on over $4 billion in revenues, or barely more than one percent. Similarly, without its alleged net revenues from Apollo of $302.6 million, United would have had an operating loss of $312.6 million in 1986. These "but for" results are extremely improbable in the context of an industry which had an average operating profit rate of 3.5 percent during the period 1984-1987.

In 1985, American estimated that SABRE's internal rate of return was 19 percent. American is presently updating that study but does not expect that the rate has significantly changed. Such a rate of return is well within the range of profits earned by other information companies which, like SABRE, undertake great risks to develop new technology to serve their customers.

SABRE's profit margin is reasonable. The CRS industry is a dynamic one, and competition among the five vendors is intense. There is no basis for intervention by Congress or by DOT.

REVIEW OF HALO EFFECT AS DEFINED IN THE
DOT COMPUTER RESERVATION STUDY

Decision Technologies
September 1988

Introduction

The halo effect describes the percent of reservations booked on the airline owning the computer reservations system (CRS) which are in excess of expectations and can not be adequately identified as resulting from a marketing or service initiative. The DOT report simplifies the definition of halo effect to be "...the increase in a vendor airline's revenue share of passenger bookings in a market above its share of departures after adjusting for the influence of override commissions..." Therefore, using the DOT definition, the only elements that differentiate airlines are the number of flight departures offered and whether override commissions are offered to travel agencies. All other aspects of airline operations are assumed to have no effect on either the capacity provided or the revenue generated.

The DOT study uses a regression analysis to estimate the size of the halo effect for each of the five CRS vendors: American, United, Delta, TWA, and Eastern. DOT's conclusion is that a large halo effect exists, with estimated revenue increases of:

American	39.9%
United	35.7%
Delta	35.2%
TWA	16.4%
Eastern	12.1%

However, the DOT study contains several problems which cause the results to be invalid. These problems can be classified as either formulation problems or statistical problems. Each type of problem is discussed in the following sections.

Formulation Problems

The DOT report states that "If no other factors influenced agency booking patterns, the vendor airline's revenue share in a market should be approximately equal to its departure share" and that the only other factor of significance is the payment of override commissions. Therefore, if American Airlines accounted for 55% of all the departures in the DFW area then American should expect, in the absence of overrides, to receive 55% of each travel agency's ticketed revenue.

The DOT assumptions are too simplistic to properly formulate the "halo effect" regression. Many factors determine what share of any travel agency's total ticket value is received by an airline. Although the possibility of other factors is mentioned, no other factors are used in the regression. Factors that should be considered include:

Capacity Share Issues

Capacity - Although the DOT report does consider capacity, the number of departures at a given airport does not adequately define capacity.

Airlines operate fleets with different mixes of aircraft types and interior configurations. For example, American Airlines and Southwest Airlines both provide scheduled air transportation between San Antonio and Dallas/Fort Worth. During early June 1988 Southwest provided 1650 seats daily using thirteen flights of 737-200 and 737-300 aircraft. American provided 1820 seats in eleven flights of DC10-10, 767-200, 727-200, and MD82 aircraft. American provided 110% of the capacity of Southwest, but only offered 85% as many flights.

If these were the only two airlines in the San Antonio - Dallas market, the following capacity and departure shares would exist.

	Percent of Total Capacity	Percent of Flights
American	52.5%	45.8%
Southwest	47.5%	54.2%
Total	100.0%	100.0%

Using the DOT definition of capacity, American would be expected to receive a lower revenue share than Southwest in this market. However, if both airlines operated at identical load factors and each airline received identical revenue per ticket, the DOT study would indicate that American was experiencing a 15% halo effect. Actually, American receiving a revenue share only equal to its flight departure share implies that American is receiving an excessively small revenue share considering the larger aircraft American flies on the route.

Route Structure - A typical passenger travels from an origin city to an explicit destination. Since airlines serving the origin city usually do not serve all possible O&D markets, passengers will be interested only in the subset of flights which serve their market. Therefore, passenger demand will vary by flight based on the O&D markets served. Several carriers, including American, increase the number of passengers considering their flights by using connecting hubs to expand the number of O&D markets served per flight. For example, in June 1988 each American departure from San Antonio served an average of 39.9 O&D markets. During the same period each Southwest departure served an average of 6.7 O&D markets. However, the DOT study assumes that all flights are equally attractive to all passengers regardless of O&D markets served. This results in the higher demand for a flight serving a larger number of O&D markets being included as part of the halo effect.

Scheduling - One airline might have more conveniently scheduled flights and therefore might enjoy a higher load factor for a given departure share. The DOT study assumes that all flights are equally attractive regardless of departure time.

Revenue Share Issues

Route Structure - The large carriers (who also happen to own CRS systems) with large and extensive route networks will usually carry a passenger a longer distance. For example, travel agencies in San Antonio are likely to be writing tickets to Honolulu, Europe, Tokyo, or the East Coast on American. These passengers would be traveling to Dallas to make connections to American's large network. However, Southwest Airlines operates a far smaller route network and thus most of Southwest's traffic will be traveling as local traffic to Dallas or as connecting traffic to the contiguous states. The effect of higher revenue generated by American's larger route network is captured in the DOT study as part of the halo effect.

Pricing - Airlines offer various grades of service and have different pricing strategies to maximize the revenue associated with the grades of service being offered. One airline might provide a higher grade of service and charge a higher price for the service. The effect of pricing differentials will contribute to the halo effect as defined in the DOT study.

Yield Management - Several airlines use in-house computer systems to best match the number of reservations offered in each fare category with expected demand for that fare. These airlines will exhibit a revenue premium relative to an airline which sells a greater proportion of its reservations at a flat low fare. The DOT study lumps the effect of yield management into the halo effect.

Source of Revenue Information - No information was provided to determine whether the revenue share information was based on "flown" revenue or "plated" revenue. "Plated" revenue, for which information is more readily available, indicates the amount of revenue that the travel agency "plated" or paid to an airline. For example, if a flight itinerary includes four flight segments on four different airlines, only one airline will receive the revenue from the travel agency and will pay the other three airlines as the service is provided. However, the entire amount of revenue associated with the itinerary is credited to the single "plated" airline. The airline "plated" by a SABRE travel agency can be any of the airlines in the original itinerary and is likely to be American if American is included in the itinerary. Therefore, using plated revenue for calculating revenue shares will credit American with a higher percentage of revenue received from SABRE travel agencies than was actually flown on American. Using plated revenue to calculate revenue shares will result in the DOT study overstating the size of the halo effect.

The DOT study considers all airlines to be the same with the exceptions of whether they own a CRS travel agency system and whether they pay travel agency override commissions. Therefore the effects of major differences between carriers including route structures, fleet compositions, pricing initiatives, yield management systems, and quality of service are included by default as elements of the halo effect.

Reasonableness of Results

In addition to possible problems with the variables used to specify the problem, the DOT regression does not necessarily yield reasonable results. If travel agency overrides are not offered, then the regression equations computed for the five major CRS operators are as follows:

American: $RS = 2.726(DS) - 3.934(DS2)$

United: $RS = 2.906(DS) - 5.049(DS2)$

TWA: $RS = 1.982(DS) - 2.047(DS2)$

Eastern: $RS = 1.765(DS) - 2.343(DS2)$

Delta: $RS = 2.771(DS) - 3.535(DS2)$

Where:
RS = Revenue Share
DS = Departure Share
DS2 = Departure Share Squared

The following table depicts the relationship between departure share and predicted revenue share for each of the above carriers.

Departure Share	Predicted Revenue Share				
	American	United	TWA	Eastern	Delta
0.00	0.00	0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.09	0.08	0.13
0.10	0.23	0.24	0.18	0.15	0.24
0.15	0.32	0.32	0.25	0.21	0.34
0.20	0.39	0.38	0.32	0.26	0.41
0.25	0.44	0.41	0.37	0.30	0.47
0.30	0.46	0.42	0.41	0.32	0.51
0.35	0.47	0.40	0.44	0.33	0.54
0.40	0.46	0.36	0.47	0.33	0.54
0.45	0.43	0.29	0.48	0.32	0.53
0.50	0.38	0.19	0.48	0.30	0.50
0.55	0.31	0.07	0.47	0.26	0.46
0.60	0.22	-0.07	0.45	0.22	0.39
0.65	0.11	-0.24	0.42	0.16	0.31

The model should be expected to compute logical revenue shares for reasonable departure shares. For example, American could have a departure share of approximately 55% in the Dallas/Fort Worth area. The DOT equations predicts that American's revenue share would be approximately 31% even though American operates a major hub at Dallas/Fort Worth operating large capacity aircraft to distant destinations.

If United Airlines operated approximately 48% of the scheduled departures out of Chicago, the DOT equations would predict that United should expect a 22% revenue share. Both of these departure shares are plausible but the associated revenue projections are extraordinarily low.

Statistical Problems

There are several statistical problems which unless corrected render the results of the DOT regression analysis suspect. These problems discussed below include the basic formulation, the use of dummy variables, use of residual analysis, and the form of the regression.

Basic Formulation - The model as formulated in the DOT report does not contain an intercept term. The report contains the statement "No intercept term is appropriate, since there can be no halo effect for an airline that is absent from the relevant market." This is an incorrect assessment. The intercept term is the artificial extrapolation of the regression curve to the origin. Since there are no observations for revenue shares where the departure share is zero, the intercept term does not have any useful interpretation. However, the intercept term is required in the model in order for the predicted revenue share to be unbiased and therefore accurate.

The regression analysis depicted in the DOT study artificially forces the intercept term to equal zero. Constraining the intercept term will insure that the residual error terms are not normally distributed with an average of zero. As a result, the underlying assumptions of the goodness of fit statistics will be violated. In general this will cause the goodness of fit statistics to be overstated and result in the model appearing to possess more predictive power than it actually does. Thus the DOT claim that "the explanatory power of our regression model is quite high," is not valid.

Use of dummy variables - The dummy variables used to model the override commission effects are used incorrectly. The purpose of these dummy variables is to capture the upward shift in airline revenue share associated with the use of overrides. Dummy variables, which are independent of departure share, are used to indicate those travel agency locations at which override commissions are in effect. Interaction variables (dummy variables multiplied by departure share) are added if additional statistical analysis indicates that a relationship exists between override commissions and the amount of departure share. However, an interaction variable by itself will not adequately model the shift associated with override commissions.

The DOT report talks about using dummy variables but the regression analysis depicted in the report never uses any. Only interaction variables are listed in the equations. Therefore, the model will not properly account for the effect of override commissions. The dummy variables may have been left out because of the mistaken notion that a shift in the intercept is not needed because of the artificially constrained intercept.

Use of residual analysis - There is no indication that a proper residual analysis was accomplished. A residual analysis of the predictive errors would result in error patterns which would highlight the bias and specification problems which appear to exist in this regression analysis.

Form of the Regression - An ordinary least squares (OLS) regression approach was used in the DOT regression analysis. Two possible problems might exist using this standard regression approach.

First, the predictive variable (revenue share) is related to the independent variable (capacity share) as a proportion with a value ranging from 0 to 1. A OLS approach is not necessarily the most appropriate approach for modeling proportions because variance of the error terms is not equally distributed for all values of the independent variable (departure share). A transformation to a logistic model designed for proportions would result in a better modeling fit.

Second, the existence of autocorrelation caused by a mis-specified model will render the model inefficient and inaccurate because the requirement of minimum variance will not have been met and the estimates of the errors of the regression estimates may be seriously understated. This would be caused by not including appropriate variables such as departure seats, fare classification, or length of flight.

Conclusions

The regression analysis depicted in the DOT CRS report does not appear to provide a reliable measure of the size of the halo effect. The following types of problems appear to exist in the regression analysis:

The model appears to be mis-specified in that variables which should be meaningful are missing.

The formulation departs from the standard form required for the OLS approach to provide meaningful statistical results.

Dummy variables used to indicate the presence of override commissions are not applied properly.

Transformations usually required to model proportions are not present in the analysis.

The result is a model which is probably not accurate in that it overestimates the effect of halo and contains goodness of fit variables which overestimate the explanatory power of the model.

BEFORE THE

DEPARTMENT OF TRANSPORTATION

WASHINGTON, D.C.

Petition of the AMERICAN SOCIETY OF TRAVEL AGENTS, INC. for a rulemaking (CRS)	Docket 45711
Petition of TEXAS AIR CORPORATION for a rulemaking (CRS)	Docket 45757

COMMENTS OF AMERICAN AIRLINES, INC.

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September 13, 1988

BEFORE THE

DEPARTMENT OF TRANSPORTATION

WASHINGTON, D.C.

Petition of the AMERICAN SOCIETY OF TRAVEL AGENTS, INC. for a rulemaking (CRS)	Docket 45711
Petition of TEXAS AIR CORPORATION for a rulemaking (CRS)	Docket 45757

COMMENTS OF AMERICAN AIRLINES, INC.

American Airlines, Inc., opposes the petitions of the American Society of Travel Agents and Texas Air (its petition was filed in the names of three subsidiaries) for a rulemaking to amend Part 255 to add burdensome and unnecessary restrictions on the ability of vendors to contract with travel agent subscribers for CRS services and equipment.

Vendor-subscriber contracts today are relatively free of government interference, and the results have been dramatically pro-competitive. Driven by market forces rather than bureaucratic rules, intense competition for travel agent business by five CRS vendors -- American, United, Delta, Northwest/TWA, and Texas Air -- has kept charges to subscribers at extremely low levels. This fierce competition has also led to significant shifts in market shares; in the last three years, American's share of CRS locations has declined from about 43 percent to 37 percent,[1/] and in the space of one year Texas Air's number of CRTs installed grew by more than 50 percent.[2/] The CRS industry is highly competitive and dynamic. There is simply no sound basis for the Department to engage in a rulemaking to restrict CRS contract terms between vendors and subscribers.

If the rules sought by ASTA and Texas Air were adopted, without doubt the prices paid by travel agents for CRS facilities would significantly increase. Absent the ability to forecast revenue flows through minimum-use provisions, absent the security of contract compliance provided by liquidated damages clauses, and absent the certainty of a minimum five-year contract term, there is simply no way that CRS vendors could continue to offer the low prices to travel agents

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1/ Testimony of Michael A. Buckman, President, SABRE Travel Information Network, before the Subcommittee on Antitrust, Monopolies and Business Rights, Senate Committee on the Judiciary, December 10, 1987, p. 9.

2/ Aviation Daily, November 30, 1987, p. 310.

that prevail in the marketplace today. The petitions for rulemaking do not serve the interests of travel agents, and do not serve the public interest.

Neither petition has presented any reason for the Department to change its present position that the validity of vendor-agent contract terms should be handled by the court system and not by Federal regulations. Secretary Burnley was recently quoted as saying that court review is "a better way to go," and that "unless and until we have evidence that the courts are failing to deal with the situation, I don't see that we need to crank up and fix it. * * * [Y]ou have healthy competition among vendors to sign people [agents] up. * * * [W]e could do a lot more harm than good." See Travel Weekly, August 22, 1988, pp. 1, 67.

The specific restrictions ASTA and Texas Air are seeking -- and the reasons why such restrictions should not be adopted -- are discussed in the following section.

I. NONE OF THE RULES THE PETITIONERS ARE PROPOSING SHOULD BE ADOPTED BY THE DEPARTMENT.

A. Minimum Use

There can be no question that minimum use clauses serve valid business functions and act to reduce monthly charges paid by travel agents to vendors.

American has demonstrated in the past that CRS is a joint product, which provides benefits in fixed proportions to different types of users.[1/] Like a newspaper, pricing of a CRS system can vary to different beneficiaries. For example, a newspaper can charge a high subscription price to consumers, but relatively low advertising rates to advertisers. Alternatively, it can increase circulation by giving away the newspaper, and thereby justify higher advertising rates. Like producers of other joint products, CRS vendors must find the appropriate balance between the various users of the system in order to conduct profitable operations.

During the early days of CRS, travel agents were the major source of revenue to CRS vendors. They paid fixed monthly rates for rental of the systems, and the airline recipients of bookings received a free ride. As the systems grew, and became more valuable to airlines, airlines began to pay booking fees which increased over time. Much of the regulatory debate of the last five years has occurred because this balance shifted so that carriers were paying a higher share of CRS costs through booking fees. With the adoption of the

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1/ National Economic Research Associates, Economic Aspects of Airline Computerized Reservations Systems, November 1983, attached to American's Comments, Docket 41686, November 7, 1983.

CRS rules in November 1984, the pendulum swung dramatically as booking fees became the major element of revenue and competitive forces drove down prices to travel agents. Only by insuring a flow of income from booking fees can such low rates be justified.

Under these circumstances, American began to include minimum use clauses in its standard CRS contracts with agents. Since the price to the agency was based on the expectation that it would use the systems to generate booking fee revenue for the vendor, such clauses are entirely reasonable. American's clause requires only that each SABRE terminal be used to generate a minimum of 100 bookings a month, or three quarters of the agent's monthly average bookings during its initial period of operation, whichever is greater. There is, of course, no requirement that any share of the minimum bookings be made on American or any other particular carrier. Thus, the clause is entirely CRS related, and has no competitive impact in air transportation.

Without a minimum use clause, American could not offer SABRE to travel agents at the low prices that they now receive. The minimum use clause, therefore, has a legitimate business rationale, and contrary to the petitioners' allegations cannot be found to have an anticompetitive purpose.

Prohibition of minimum use clauses would create a basic change in the current CRS price structure. By reducing the certainty of recovery of booking fees, the Department would increase the risk faced by the CRS vendors with respect to future profitability of their operations. Any future reduction in profits can be offset only by increases in booking fees or travel agent subscription charges. As the Department noted in its Study of Airline Computer Reservation Systems submitted in May 1988, "It is unclear whether or how action to alleviate restrictions on competition for subscribers can be expected to have a substantial beneficial effect on booking fees" (p. 135).

B. Liquidated Damages

The petitioners' opposition to liquidated damages clauses in CRS contracts is simply without substance. It is important to remember that the agent is well aware that its price is based in part on the booking fees which the CRS vendor expects to earn over the life of the contract. If the contract is terminated prematurely, the vendor suffers the loss of those future booking fees during the remaining term of that contract. That loss constitutes damages to American which are a reasonably foreseeable consequence of the breach. Without those booking fees, the price charged to the travel agency would not be compensatory. As a means of recovering the actual damages which would be suffered in the event of a termination, several CRS vendors, including American, have placed liquidated damages provisions in their agency contracts. These provisions are not a cancellation penalty, but are simply an administratively efficient method of measuring and recovering the actual damages that are suffered by a CRS vendor if the contract is breached.

Since the liquidated damages clause is a shorthand method of collecting such actual damages, it places no undue risk or burden on the travel agent. The formula used by American to calculate damages is reasonable. Indeed, it is a conservative estimate and does not include all damages which American would suffer in the event of a breach. For example, the formula excludes revenue which American would receive from bookings for cars, hotels, and other products available through SABRE. The clause allows both parties to calculate easily, at the time of entering into the agreement, the amount that would be owed in the event of a breach.

There is no basis for travel agent complaints about liquidated damages clauses. If an agent does not like them, there is a choice of other vendors which do not include such clauses in their contracts. In any event, liquidated damages provisions take nothing away from travel agents, since they merely reflect the actual damages that would be suffered by American if the agent breaches its contract.

C. Rollover

Under rollover clauses, the acquisition of additional equipment by an existing subscriber would create a new five-year term with respect to the entire contract. A year ago, American announced that it would not impose rollover provisions in new contracts, and would not enforce such provisions in existing contracts. This issue has been resolved, and there is no reason for a government-imposed rule.

D. Parity

A demand by one vendor for parity with the facilities of another vendor at an agency is already covered by Section 255.6(b) of the CRS rules, which forbids a vendor from "directly or indirectly prohibiting a subscriber from obtaining or using another system." Explaining the purpose of Section 255.6, the CAB said it intended to prohibit contract provisions "that require parity in the number of terminals an agent has from various CRS providers" (49 Fed. Reg. 11658, March 27, 1984).

Northwest Airlines is currently the subject of a complaint by Hanover Travel, a Memphis travel agency, for violating the parity prohibition (Docket 45593). The Department should take appropriate enforcement action against

Northwest and any other vendor found to be making illegal parity demands. A further rulemaking on parity is not needed.

E. Five-Year Terms

The petitioners' attack on the standard five-year term in CRS contracts -- as authorized by the present CRS rules -- is particularly ill-founded. Reduction of the five-year term to three years would have a substantial adverse impact on travel agents, which would immediately face higher fees for CRS services and equipment.

The five-year term reduces the amount of the monthly payment by the purchaser, just as a four-year car lease has a lower monthly payment than a three-year lease. The five-year term is co-extensive with the depreciation period of computer equipment, and a limitation of the maximum contract term to a shorter period could well result in CRS vendors having to take write-downs on computer equipment on the expiration of agency contracts.

The length of the contract term is clearly an element of price. If one element of the price equation is changed, the equilibrium has to change, with the result that some other aspect of CRS pricing will have to be modified. The current provisions generally allow an efficient CRS vendor to earn a reasonable return on its investment over the life of a five-year contract with the travel agency. A shorter contract term would reduce the expected flow of subscriber and airline booking fees but without reducing the amount of the vendor's initial investment required to automate the agency -- for example, computer and communications hardware, installation expenses, maintenance contracts, and subscriber training. This would force the vendor to raise its prices.

These higher charges will be paid by travel agents, air carriers, or both. The current contracts permit the vendor to rely on a future stream of bookings which have, until now, allowed CRS vendors to charge lower prices to travel agents because of intense competition. Without the assurance of those future revenues, CRS vendors must collect higher fees directly from subscribers. Travel agents may think that vendor competition will result in maintenance of current price levels to them, but this is a false hope. Since all vendors will be subject to the same regulations and to the same pressures to increase prices to offset the effect of the rules, charges to travel agents will inevitably increase. If CRS competition does not allow the collection of such increased revenue in full in the form of contract charges to travel agents, the money will have to come from the other side of the equation -- booking fees from airlines, hotels, and car rental companies.

If it comes from neither side, CRS vendors will have reduced revenues and unprofitable operations. Their incentive will then be to cut development of new functions that keep CRS on the cutting edge of technology.

Another likelihood is that some of the weaker CRS vendors might be forced to exit the industry. Any rule limiting contract terms to three years would apply equally to all vendors. The existing locations of every vendor, not just American, would be at risk, and we suspect that those systems that have superior functionality and lower costs will be the ones that survive.

II. CONTRARY TO ASTA'S AND TEXAS AIR'S ALLEGATIONS, REQUIRING ADHERENCE TO REASONABLE CONTRACT TERMS IN AGENT-VENDOR CONTRACTS IS NOT ANTICOMPETITIVE.

Both ASTA and Texas Air allege that minimum-use provisions, liquidated damages clauses, and five-year terms are anticompetitive and constitute barriers to entry in the CRS industry. This is simply not so; as explained above, each of these provisions has a legitimate business rationale, and each serves to keep fees paid by travel agents for CRS at remarkably low levels.

At the outset, we should be clear what these contract clauses do not prohibit: they do not preclude an agent from adding equipment of another vendor at any time and they do not limit competition for travel agent business at the beginning of the term of a contract. What they do require is that, once an agent has made a decision with respect to a CRS system, he live up to the terms of his contractual obligation.

American believes it extraordinary that a proposal for adherence to contracts can be considered anticompetitive. Just think how this airline debate would sound if applied to any other industry. Let us assume, for example, that a consumer examines all the 1988 model cars and decides on a four-year lease of a new Buick. The price that he negotiates with the Buick dealer is lower than the price for a three-year lease because of the dealer's expectation that the payments will be made over the full term of the contract. Let us assume that, a year later, the consumer examines all the 1989 cars and decides that he likes a new Mercury better than his existing one-year old Buick. Let us even assume that the Mercury dealer offers a lower price than the existing monthly rental for the Buick. Under these circumstances, no rational person would suggest that the existence of the Buick lease is an anticompetitive limitation upon the rights of the Mercury dealer to compete. We could even expand the analogy to computer mainframes, apartment houses, or airplanes. It is simply beyond belief that lessees would be allowed to walk away from existing contracts with impunity in the name of competitive freedom. Yet this is exactly what is suggested by the rulemaking petitions at issue here.

None of these contract provisions impedes entry into the CRS business. This is demonstrated dramatically by the growth of SystemOne since 1985 despite the existence of these clauses:

	1985	1987	Increase
Locations	4,221	6,764	60.2%
CRTs	12,041	25,127	108.7

(SOURCE: Texas Air Complaint, Docket 45759, p. 38)

No wonder that Eastern's President, Phillip Bakes, recently stated that Texas Air "had catapulted [SystemOne] from a second-rate player with 11% of the market to a major factor enjoying nearly 20% of the domestic travel agent market" (Aviation Daily, March 9, 1988, p. 370). There is ample opportunity for all vendors to compete at the time a travel agent makes its initial automation decision. Once that decision is made and a contract is signed, it is not unreasonable or anticompetitive to say the one vendor has won and the other has lost a particular location.

This does not preclude expansion of new entrant vendors. There is plenty of turnover in the travel agent business, with 2,500 agents entering yearly, and the number of dual installations is quite large. More than 750 SABRE-automated agents have CRSs of other vendors in the same location. The existence of five major vendors, with the largest having no more than a 37 percent market share, makes it inherently incredible that the present contract clauses could be used to gain monopoly power.

III. ASTA'S TECHNOLOGICAL DESIRES ARE BEING MET IN THE COMPETITIVE MARKETPLACE.

Much of ASTA's paper is devoted to an attempted rebuttal to the conclusion of DOT's CRS study that agents are often not wholeheartedly supportive of new technology because it creates the possibility that their services will no longer be needed in the distribution process. ASTA argues that it is not afraid of new technological developments, but merely wants to develop a "third party information network" which would allow multiple access to various industry data bases and reservations systems without the necessity for multiple hardware and software systems (ASTA petition, pp. 11-12).

ASTA's theme is one it has pursued for a dozen years. In 1976-1978, it led industry discussions and tests of multi-access systems. However, competition between CRS vendors, which at that time operated from single data bases, soon made the ASTA effort obsolete. A multi-access system, MAARS-PLUS, that developed as a result of ASTA's efforts was technologically inferior to existing CRS systems, particularly with respect to its slow response time, cumbersome formats, and lack of functionality, and could not compete over the long run.

ASTA is still pursuing the goal of a single comprehensive multi-access system, but again competition among existing vendors has bypassed its efforts. The same functionality outlined in its paper is already available from American, and at least two of the other vendors are developing similar systems.

American's Total Access system has connected to SABRE the internal data bases of numerous travel industry suppliers. Agents can sign in and work in the computers of a dozen major airlines, as well as in the internal data bases of other travel suppliers such as Club Med, Cruise Match, and Amtrak. Major auto rental companies such as Hertz and Avis are in a "direct connect" mode, under which a travel agent's car rental transaction is automatically entered into the data base of the other system and a confirmation number is instantaneously returned. American will soon add the Official Recreation Guide, a comprehensive listing of tour and recreational activities, to Total Access. American's Tourfinder program contains 40 tour suppliers. SABRE, of course, has information on 16,000 hotel properties, 100 hotel chains, and 40 car rental companies in its primary data base. Other CRSs, while not as advanced as SABRE, are also adding access to other data bases to their functionality.[1]

American has recently announced Automatic Total Access under which every booking on a Total Access carrier will immediately be made in the data base of that carrier. Total Access will also become more "seamless," and the additional keystroke previously required for Total Access will be eliminated.

Since the competitive marketplace is already meeting ASTA's requirements, it is not at all clear why ASTA is pursuing its "third party" goals. Nor is it clear why ASTA thinks the topic is relevant to its rulemaking petition. Certainly, ASTA cannot argue that normal commercial contract clauses should be modified in order to further its "third party" agenda. Such a system does not exist, and will never need to be developed so long as competition among CRS vendors provides the functionality desired by travel agents.

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[1] Texas Air's Direct Access system does not allow the travel agent to actually work in the data base of the other carrier. The agent can "look, but not book." SystemOne, however, is working to improve its system and has developed a "direct connect" capability which links the Eastern and Continental data bases; this, however, is not available to airlines outside the Texas Air corporate structure.

CONCLUSION

ASTA and Texas Air have presented no valid basis for the Department to institute a rulemaking proceeding to further regulate CRS contract terms between vendors and subscribers. The petitions should be denied.

Respectfully submitted,

Richard J. Fahy, Jr

RICHARD J. FAHY, JR. / CBN

Robert E. Cooper

ROBERT E. COOPER / CBN

Carl B. Nelson Jr

J. WILLIAM DOOLITTLE /
CARL B. NELSON, JR.

Attorneys for
American Airlines, Inc.

September 13, 1988

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing comments by first-class mail on ASTA, System One, Continental, and Eastern, and on all persons named in the service lists attached to their petitions.

Carl B. Nelson Jr.
CARL B. NELSON, JR.

September 13, 1988

Offers Up To 50% Off Coach

Eastern Tempting SE Corps. To Use System One Agencies

BY RICHARD D'AMBROSIO

ATLANTA — Eastern Airlines is offering exclusive ticket discounts of up to 50 percent off coach fares to corporations in the Southeast if they switch to travel agencies that use the System One computerized reservation system.

According to several Atlanta agencies, the offers are being made mostly to companies in Georgia, the Carolinas and Tennessee with $500,000 to $2 million in annual air volume. The discounts are good only for bookings made through the preferred agencies.

Sources said the strategy marks an attempt to counter the lagging placement of System One systems in Southeast travel agencies. While Eastern said the program is meant to increase its market share, it offered no further explanation.

[illegible]

Win A Computer!!

See Page 31

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Alamo features fine General
cars like this Pontiac Gran

Alamo Rent A Car

Where all the mile
e free.

Eastern Tempting SE Cos. To Use Sys. One Agencies

BUSINESS TRAVEL NEWS, August 29, 1988

Continued from Page 1

Eastern also is trying to beef up its CRS business from the agency side, telling agencies it will direct corporate business to them if they convert, the sources added. System One has become the primary CRS system at 16 new agencies since the beginning of the year, though there is no evidence the program is a contributing factor.

"It's a fairly new program," said Candy Alligood, president of Uniglobe Prestige Travel, a small System One agency in Atlanta. "I think it started at the beginning of the year."

While her agency has not yet benefited from the program, Alligood said Eastern sales representatives have told her they will be referring accounts to Uniglobe Prestige in the future.

She said the discounts range from 40 to 50 percent off coach. She added that Eastern has indicated it will tailor the deals to make them better than those offered by other airlines.

Gary E. Coton, president of World Travel Advisors, the largest independent agency in Atlanta, said carriers such as United Airlines and American Airlines have been doing the same thing on a more selective basis across the country, but that "Eastern is doing it more frequently and openly."

"From my understanding, it's been much more of a concerted effort recently," agreed John Seemy, southern regional vice president for Rosenbluth Travel Agency Inc.

The Atlanta branch of Thomas Cook Travel U.S.A. had been using United's Apollo system until June, when it switched to System One. Thomas Cook declined to comment on why it made the shift.

System One—a subsidiary of Eastern parent Texas Air Corp.—is the primary reservation system in 27 percent of Atlanta-area agencies, according to System One spokeswoman Charlotte Kirk.

"It's nothing unusual," said Eastern spokeswoman Paula Musto. "All the airlines have their own similar programs."

"All the automation dealers are doing it," agreed Washington travel industry attorney Mark Pestronk of Pestronk & Associates. "There's only a marginal difference lately from what's been going on for years."

Some agencies said they have not felt much impact from Eastern's marketing push.

"I don't really see them [Eastern] working against us to get corporate accounts to use System One agencies," said Danny Hood, American Express Travel Related Services Co. Inc.'s director of business travel sales. "I don't think it's a big trend. There probably are some corporations switching, but they're isolated cases."

According to Hood, there are about 80 corporate accounts in the Atlanta area with more than $1 million in air volume. American Express has about 25 of those accounts, he said.

Although Eastern claims it is trying to boost market share through the program, Edmund Greenslet, editor of the *Airline Monitor*, an industry newsletter, said it won't have that effect unless financially ailing Eastern puts some aircraft back in the air. Eastern has cut back service to Atlanta and currently holds about a 20 percent market share, while Delta Air Lines handles about 60 percent.

"The war is going to be won on different grounds" than reservation systems, he said, adding that Eastern's program has little meaning unless the airline is looking to make the automation subsidiary a profit center. "It's more important to a Thomas Cook," said Greenslet.

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BEFORE THE
U.S. DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C.

Complaint of)

AA CRUISE and TRAVEL,)
AMERICAN INTERNATIONAL TRAVEL,
INC., BUTLER'S TRAVEL STATION,)
CANYON TRAVEL, COSMOPOLITAN
TRAVEL, CROSSROADS TRAVEL,)
EZ TRAVEL, EXCELSIOR TRAVEL,
F & T TOUR WEST, FILIPPO'S)
TRAVEL, INC., INTERNATIONAL
& DOMESTIC TRAVEL, INC.,) Docket No. 45796
LAKEVIEW TRAVEL, LEASURE
TRAVEL, INC., MODERN TRAVEL,)
NOMAD TRAVEL, INC.,
PERSONALIZED TRAVEL,)
THE LINCOLN TRAVEL CENTER,
THOMAS TRAVEL, TOUR WEST)
TRAVEL, UNIGLOBE RED CARPET
TRAVEL, WESTGATE TRAVEL, INC.,)
and ZCMI TRAVEL,
)
against
)
DELTA AIR LINES, INC.,
MORRIS/ASK MR. FOSTER,)
MURDOCK TRAVEL INC., and
BONNEVILLE-BEEHIVE TRAVEL GROUP)

(Violation of Section 411,)
49 U.S.C. § 1381, and 14 C.F.R.
Part 255))

COMPLAINT AND REQUEST FOR IMMEDIATE CEASE AND DESIST ORDER AGAINST DELTA AIRLINES, INC., MORRIS/ASK MR. FOSTER, MURDOCK TRAVEL, INC., AND BONNEVILLE-BEEHIVE TRAVEL GROUP

Pursuant to Rule 201, Department of Transportation Rules of Practice, 14 C.F.R. § 302.201 (1988), AA Cruise and Travel, American International Travel, Butler's Travel Station, Canyon Travel, Cosmopolitan Travel, Crossroads Travel, EZ Travel, Excelsior Travel, F & T Tour West, Filippo's Travel, Inc., International & Domestic Travel, Inc., Lakeview Travel, Leasure Travel, Inc., Modern Travel, Nomad Travel, Inc., Personalized Travel, The Lincoln Travel Center, Thomas Travel, Tour West Travel, Uniglobe Red Carpet Travel, Westgate Travel, Inc., and ZCMI Travel, (collectively referred to as complainants) file this complaint against Delta Air Lines, Inc. (Delta), Morris/Ask Mr. Foster (Morris), Murdock Travel, Inc. (Murdock) and Bonneville-Beehive Travel Group (Bonneville) alleging that Delta, Morris, Murdock and Bonneville are engaging in unfair and deceptive practices and unfair methods of competition in violation of Section 411 of the Federal Aviation Act (The Act), 49 U.S.C. §§ 1302 & 1381 (Supp. 1988), and that Delta is violating the Department's carrier-owned Computer Reservations Systems regulations, 14 C.F.R. Part 255 (the CRS Rules). In support of its complaint, complainants allege as follows:

DESCRIPTION OF THE PARTIES

1. AA Cruise and Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

2. American International Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

3. Butler's Travel Station, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

4. Canyon Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

5. Cosmopolitan Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

6. Crossroads Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

7. EZ Travel, is a sole proprietorship operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

8. Excelsior Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

9. F & T Tour West, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

10. Filippo's Travel, Inc. is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

11. International & Domestic Travel, Inc., is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

12. Lakeview Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

13. Leasure Travel, Inc., is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

14. Modern Travel, is a partnership operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

15. Nomad Travel, Inc. is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

16. Personalized Travel, is a partnership operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

17. The Lincoln Travel Center, is a partnership operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

18. Thomas Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

19. Tour West Travel, is a partnership operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

20. Uniglobe Red Carpet Travel, is a sole proprietorship operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

21. Westgate Travel, Inc., is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

22. ZCMI Travel, is a Utah corporation operating a travel agency in Utah and engaging in business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and as a "subscriber" as defined in 14 C.F.R. § 255.3.

23. Delta Air Lines (Delta) is a major air "carrier," as defined in 49 U.S.C. § 1301(3) and 14 C.F.R. 255.3, with home offices in Atlanta, Georgia and with a "hub" operation in Salt Lake City, Utah. Delta also is a "system vendor" of a computer reservation system (CRS) as defined in 14 C.F.R. § 255.3, referred to as DATAS II or DeltaStar.

24. Morris/Ask Mr. Foster (Morris) is a travel agency, doing business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and is a subscriber as defined in 14 C.F.R. § 255.3. Morris books approximately $100 million in annual airline ticket sales.

25. Murdock Travel Inc. (Murdock) is a travel agency, doing business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and is a subscriber as

defined in 14 C.F.R. § 255.3. Murdock books approximately $50 million in annual airline ticket sales.

26. Bonneville-Beehive Travel (Bonneville) is a travel agency, doing business in Utah as a "ticket agent" as defined in 49 U.S.C. § 1301(40) and is a subscriber as defined in 14 C.F.R. § 255.3. Bonneville books approximately $40 million in annual airline ticket sales.

GENERAL ALLEGATIONS

27. In 1987, Delta purchased Western Airlines, took over Western's prior routes and established Salt lake City as a "hub" of operations. Delta now has approximately 159 flights per day departing from Salt Lake City as compared to approximately 47 departure flights for all other carriers (excluding commuters) operating out of Salt Lake City. American Airlines, which has the next highest number of Salt Lake City departures, has approximately eleven daily flights. Delta therefore controls over seventy percent (70%) of the Salt Lake City commercial air travel market and has overwhelming market power in that market.

28. Morris, Murdock and Bonneville (collectively referred to as the Big Three) control an estimated sixty-five percent (65%) of the Utah originated commercial air travel, reservation and travel service market.

29. Commencing approximately ten to twelve months ago, the exact date being unknown to complainants, and continuing uninterruptedly tc and including the date of the filing of this Complaint, Delta, Morris, Murdock and Bonneville have combined, conspired and agreed in an unlawful restraint of trade in the sale of commercial airline travel tickets on Delta for Salt Lake City departures and in the sale of CRS systems in violation of 49 U.S.C. 1381 and the federal antitrust laws. Such continuing contracts, combinations, or conspiracies have substantially and directly affected trade and commerce in the sale of commercial airline tickets for travel originating in Salt Lake City.

30. For a period of approximately one year prior to the submission of this complaint, Delta has been negotiating certain CRS and related agreements with Morris, Murdock and Bonneville. These three agencies have obtained, or are in the process of obtaining, DATAS II equipment. Substantial financial benefits will accrue to Delta as a result of the Big Three using DATAS II reservation equipment. Delta will save segment fees that Delta is charged when a ticket agent books a Delta flight through another reservation system, such as SABRE or PARS. Given the volume of Delta's flights out of Utah, it

is estimated that the agreements with the Big Three to use DATAS II could save Delta substantially in excess of $1 million per year.

31. In consideration for using DATAS II, Delta has given certain preferential incentives to the Big Three agencies, in violation of 14 C.F.R. § 255.6(c)-(d). These incentives include, but are not limited to:

a) free equipment installation;

b) free equipment or significantly reduced equipment charges;

c) increased commissions on certain bookings;

d) unlimited passes;

e) waivers of advance purchase requirements;

f) unlimited ability to overbook the lowest classes of service or clear waitlisted clients; and

g) free tickets for corporate account use, and similar corporate client benefits.

These same terms are not available to complainants.

32. In separate and related agreements entered into sometime between October 1987 and June 1988, Delta has agreed to provide special "bulk fares" or "tour-based fares" exclusively to Morris, Murdock and Bonneville. These special bulk fares include Delta flights departing from Salt Lake City to approximately thirty-eight different markets. The fares do not require advance

booking by travelers and represent a significant reduction from the standard fares. The bulk or tour-based fares include round-trip air travel and, in some instances, include either a seven day car rental or hotel accommodations.

33. Although Delta claims that the fares are designed for the leisure travel market, not the business travel market, Morris, Murdock and Bonneville are aggressively advertising and promoting these special fares to corporate clients, soliciting complainants' corporate clients and explaining that the tour fare is less than regular coach fares and that the corporate client can forego car or hotel reservations and still save substantial sums on the airline fare. The Big Three travel agencies have represented to corporate clients that, with these fares, a corporation booking with them can save between 40% and 60% from normally advertised ticket prices, including rebates.

34. The special bulk fares were negotiated exclusively with Morris, Murdock and Bonneville, and are not available to complainants. Furthermore, Delta has agreed with the three agencies that these fares will not be offered to competitive agencies (including the complainants), and Morris, Murdock and Bonneville likewise

are prohibited from wholesaling these lower fares to competing agencies. Complainants believe that the bulk fare agreements are open-ended agreements that cannot be terminated for one year and that they are intended to be extended and in force for the five year term of Delta's DATAS II agreements with the Big Three.

35. In July and August 1988, complainants contacted Delta Air Lines, seeking similar fares from Delta. Complainants have met or talked with Delta representatives on numerous occasions, requesting access to the bulk fares offered to the Big Three and other concessions granted to the Big Three. Delta initially declined to make any concessions to complainants and other agencies in Utah. On August 12, 1988, and as revised on August 17, 1988, Delta provided Utah travel agents with a revised air fare tour program. These fares, although lower than fares previously available to complainants, are not competitive with fares available to Morris, Murdock and Bonneville. For example, to California markets, fares available to complainants average between $30-$40 higher than the fares available to the Big Three, and the fares available to complainants include restrictions that are not imposed on the fares available to the Big Three. Furthermore, these new fares are scheduled to terminate in

either December 1988, or March 1989, while the bulk fares given to Morris, Murdock and Bonneville will continue beyond that date.

36. Complainants have no alternative carrier that offers comparable air travel out of Salt Lake City. Similarly, no other tour operator or air fare consolidator or wholesaler can meet the fares Delta has given Morris, Murdock and Bonneville. Even Delta's affiliate tour wholesaler, Certified Tours, cannot offer competitive fares with the same conditions. Thus Delta's exclusive dealing with Morris, Murdock and Bonneville places complainants at a competitive disadvantage and threatens to eliminate and foreclose complainants from the relevant market. Complainants have lost and are continuing to lose substantial business, including existing corporate clients, to the Big Three. As a result, competition in the commercial air travel market in Salt Lake City has been and continues to be adversely affected.

37. Delta's refusal to deal with other Utah travel agencies and provide comparative bulk fares is predatory and intended to preclude complainants from competing with the Big Three and is in furtherance of Delta's monopoly of commercial air travel service out of Salt Lake City and in furtherance of Delta's and the Big

Three's attempt to monopolize the commercial air travel agency market in Utah.

38. Complainants believe that these preferential bulk fares are sold by Delta below cost, and are subsidized by other higher fares to the general public. Thus, consumers flying to other destinations, or who otherwise don't qualify for the bulk fares, are penalized.

39. Delta's discriminatory practices have caused a thirty to fifty percent reduction in gross revenues of many travel agencies that are not the beneficiaries of Delta's preferential treatment. Many of the smaller travel agencies are likely to go out of business as a result of the conduct of Delta, Morris, Murdock and Bonneville. The agreements between Delta and Morris, Delta and Murdock, and Delta and Bonneville could result in the elimination of substantially all small independent agents as a channel of competition in the Utah travel market. The elimination of the smaller agencies will likewise have a negative impact on consumers because, in many cases, the small agencies cover markets not served by the larger agents. Furthermore, Delta's preferential agreements with Morris, Murdock and Bonneville, and the consequential bias in bookings, will cause the public to lose confidence in the travel agent as an unbiased source

for booking travel. Finally, the long-term result of these anticompetitive agreements and the elimination of independent travel agents is that the Big Three will have an oligopoly in booking Salt Lake City airline departures for Utah travelers and will be in a position to demand further preferential treatment, raising Delta's costs of services to the consumer.

SPECIFIC VIOLATIONS

40. The "bulk fare agreements" between Delta and Morris, Delta and Murdock, and Delta and Bonneville constitute unfair methods of competition prohibited by 49 U.S.C. § 1381 and are in violation of the federal antitrust laws. In particular, the "bulk fare agreements" themselves are anticompetitive, exclusive dealings with Morris, Murdock and Bonneville. These exclusive dealing agreements provide discriminatory pricing to the Big Three without any justification based on volume of business. Moreover, these exclusive dealing agreements necessarily result in the Big Three agencies "favoring" Delta as a carrier over American or other airlines, in contravention of the policy behind and express language of the CRS rules.

41. Specifically, the bulk fares granted exclusively to the Big Three are anticompetitive and

discriminate against independent agencies in the following particulars:

a. The prices to other travel agencies for the same markets are higher than the prices to the Big Three.

b. Delta claims that the fares available to other agents are "roughly equivalent" to the bulk fares exclusively available to Morris, Murdock and Bonneville _if_ complainants forego commissions on the sale of airline tickets. In contrast, the Big Three can sell these tickets net commission because of override commissions, which the great majority of complainants do not receive, and still receive a profit on the sale. Thus complainants can only sell these fares at no profit or a loss.

c. The fares available exclusively to the Big Three are for more destinations than the Delta fares made available in August 1988 to the other agencies.

d. The August 1988 fares available to all agents are scheduled to terminate in December 1988 or March 1989, depending on the destination. The exclusive bulk fare agreements with the Big Three are open-ended agreements that, on information and belief, will be extended well beyond March 1989.

e. The August 1988 fares available to all agents include restrictions that, in most cases, are not imposed on the Big Three under the exclusive bulk fare agreements.

42. In addition to the bulk fare agreements, Delta has provided equipment to Morris, Murdock and Bonneville on terms markedly different than the terms for which the same equipment has been offered or provided to complainants. Delta, in making these agreements, has

violated 14 C.F.R Part 255 by conditioning the equipment and related benefits to an agent's sales volume and tying the provision of equipment to certain other benefits and to the sale of transportation and the receipt of commissions. Through its monopolistic position and dominance in the Salt Lake City commercial air travel market, Delta is trying to leverage into an increased market share in, and attempting to monopolize, the CRS system in that same geographic market. Delta's conduct constitutes an improper use of its monopoly power in the Salt Lake City commercial air travel market.

43. The agreements for DATAS II equipment with the Big Three are anticompetitive and a deceptive practice prohibited by 49 U.S.C. § 1381 and violate 14 C.F.R. § 255.6(b). Specifically, the agreements are anticompetitive and violate the CRS regulations in the following particulars:

a. DATAS II has been installed in the offices of the Big Three without charge or for substantially reduced charges;

b. Special consideration or "trauma dollars" have been paid to Morris, Murdock and/or Bonneville for converting from another reservation system to DATAS II or DeltaStar;

c. The installation and lease terms and other benefits given to Morris, Murdock and Bonneville are specifically conditioned on sales volume; and

d. Delta allowed the Big Three to install DATAS II in addition to other CRS systems while Delta told many of the complainants that the acquisition of DATAS II was an "all or nothing" deal, and that Delta would require complainants to use DATAS II exclusively, in violation of 14 C.F.R. § 255.6(b). Delta later agreed that certain complainant agencies could acquire DATAS II in addition to other systems but, in July 1988, Delta announced that Dataslink, Delta's companion accounting and "back-office" program, would not be compatible with other reservation systems, rendering complainants' other reservation systems obsolete.

44. In addition to concessions on equipment installation and lease terms, Delta has provided Morris, Murdock and Bonneville with other additional consideration in return for preference booking on Delta and through DATAS II. This additional consideration is in violation of 14 C.F.R. §§ 255.6(b)-(d). Specifically, the additional consideration given to Morris, Murdock and Bonneville includes, but is not limited to:

a. Override commissions not generally available to complainants;

b. Free tickets;

c. Automatic waivers of advance purchase requirements;

d. Unlimited passes;

e. Automatic upgrades and clearance of discount seats not available to other agents from Delta's inventory; and

f. Participation in or knowledge of agreements between Morris, Murdock and Bonneville with

> their employees through which employees receive a direct commission in an amount of approximately 75¢ for each Delta booking, in violation of 14 C.F.R. § 255.6(d).

These benefits are conditioned on sales volume, in violation of 14 C.F.R. § 255.6(c) and result in vendor biasing which is an unlawful deceptive practice.

45. Delta, upon learning of complainants' intent to file this action, has engaged in certain additional retaliatory actions that constitute unfair methods of competition. These retaliatory actions include, but are not limited to:

a. Denial of waivers of penalties on advance purchase fares when complainants or complainants' clients have made a scheduling mistake. Such waivers, infrequently sought, previously have been granted routinely to complainants by Delta and are now being systematically refused;

b. Refusal to provide tickets to complainants for "familiarization trips" when such tickets have been previously agreed to by Delta representatives; and

c. Refusal to renegotiate DATAS II contracts as previously agreed.

REQUEST FOR RELIEF

The agreements, as entered into between Delta and Morris, Delta and Murdock, and Delta and Bonneville as set forth in this complaint, and the alleged conduct engaged in pursuant to those agreements, constitute deceptive practices and unfair methods of competition. The Department therefore should order Delta, Morris, Murdock and Bonneville to immediately cease and desist these practices pursuant to 49 U.S.C. § 1381(a), impose civil penalties against those parties and award complainants their costs and attorney fees incurred in connection with this proceeding.

DATED this 1st day of September, 1988.

GIAUQUE, WILLIAMS, WILCOX
& BENDINGER

Attorneys for Complainants

0488W

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Complaint was sent by federal express, this 1st day of September, 1988, to:

Documentary Services Division
of Transportation
Washington, D.C. 20590

and was hand delivered on September 1, 1988, to:

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Bonneville-Beehive Travel Group
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Wills L. Curtis

0493W

BEFORE THE
U.S. DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C.

Complaint of

HANOVER TRAVEL, INC.

against

NORTHWEST AIRLINES, INC., and
PARS MARKETING PARTNERSHIP

(Violations of Section 411 and
Part 255)

Docket No. 45593

COMPLAINT OF HANOVER TRAVEL, INC. AGAINST NORTHWEST AIRLINES, INC. AND PARS MARKETING PARTNERSHIP AND REQUEST FOR IMMEDIATE CEASE AND DESIST ORDER

Communications with respect to this document should be sent to:

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April 21, 1988

BEFORE THE
U.S. DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C.

Complaint of

HANOVER TRAVEL, INC.

against

NORTHWEST AIRLINES, INC., and
PARS MARKETING PARTNERSHIP

(Violation of Section 411 and
Part 255)

Docket No. ________

COMPLAINT OF HANOVER TRAVEL, INC. AGAINST NORTHWEST AIRLINES, INC. AND PARS MARKETING PARTNERSHIP AND REQUEST FOR IMMEDIATE CEASE AND DESIST ORDER

Pursuant to Section 302.201 of the Department's regulations, Hanover Travel, Inc. ("Hanover") hereby files this complaint against Northwest Airlines, Inc. ("Northwest") and PARS Marketing Partnership ("PARS"), alleging, first, that Northwest and PARS are engaging in unfair and deceptive practices and unfair methods of competition in violation of Section 411 of the Federal Aviation Act, as amended (the "Act"), and, second, that Northwest and PARS are violating the Department's Carrier-Owned Computer Reservation Systems regulations, 14 C.F.R. Part 255 (the "CRS Rules"). In support of its complaint, Hanover states as follows:

1. Hanover is a corporation organized and existing under the laws of the state of Tennessee as a travel agent engaging in business in Memphis, Tennessee as a "ticket agent" as defined in 49 U.S.C. §1301(40) and as a "subscriber" as defined in 14 C.F.R. Part 255.3.

2. Northwest is a major air "Carrier" as defined in 14 C.F.R. Part 255.3 and is organized and existing under the laws of the state of Delaware, with its home office being located in Minneapolis/St. Paul, Minnesota. PARS is a Delaware general partnership, one-half of which is owned by Northwest. Both Northwest and PARS are "System vendors" as defined in 14 C.F.R. Part 255.3, and their conduct with respect to placement and operation of CRS facilities is thus governed by the provisions of Part 255.

3. On September 1, 1987, Hanover executed a contract with a American Airlines, Inc. ("American"), likewise a System vendor as well as a Carrier, for the use of its system, as defined in 14 C.F.R. Part 255.3, known as SABRE (the "American Contract"). Under the American Contract, Hanover has, among other equipment, six (6) SABRE terminals, and had at the time of the execution of said contract, and still has as of the filing of this complaint, "total access" to Northwest's internal reservation system through SABRE. Because the price Hanover pays for SABRE is based in part on the expectation that American will receive booking fees from Hanover's use of SABRE, the American Contract requires that Hanover actually use SABRE for a minimum number of bookings each month.

4. The city of Memphis, Tennessee through Memphis International Airport has recently become a major hub of Northwest. Based upon recent statistics, Northwest and its affiliated commuter line, Airlink, operate approximately eighty-

four percent (84%) of all daily passenger flights from Memphis International Airport. Northwest, therefore, has overwhelming market power in this area or region.

5. Commencing in late 1987, Northwest and PARS initiated a program targeted at the travel agency community (ticket agents) in Memphis designed to coerce the travel agents to accept and use its system commonly referred to as the PARS system. Among other things, Northwest and PARS made it known that agents who refused to take the PARS system would not be able to survive in this market because they would be denied a number of major benefits, including prompt wait list clearing, business class upgrades, last seat availability, free drink tickets for clients and agent discount tickets.

6. In early 1988, Northwest and PARS announced that it would no longer participate in "total access" through SABRE. On information and belief, Hanover would show that Northwest/PARS intends to withdraw from total access from SABRE on or about May 15, 1988. The consequence of the loss of "total access" through SABRE to a subscriber that does not have use of the PARS system is that the subscriber will not be able to provide as fast or as efficient service to its clients who will be using Northwest as the subscriber was able to provide through SABRE with total access. These consequences have been used by representatives of Northwest/PARS as a selling tool in their promotion of their system. It is necessary that travel agents have reliable up-to-date information from all available sources,

and that they have the ability to provide the fastest and most efficient service to their clients from all available sources.

7. In early 1988, a representative of Northwest/PARS called upon Hanover for the purpose of convincing Hanover to buy/lease its system. In view of Northwest/PARS announced intention to withdraw from total access in SABRE and because of its coercive tactics as set out above, Hanover was willing to enter into an agreement for the PARS system with two (2) terminals. At that time, a Northwest/PARS representative informed the president of Hanover that the system would not be made available unless Hanover agreed to accept six (6) terminals, thus achieving what the Northwest/PARS representative termed "parity" with the number of SABRE terminals at the agency. Hanover would show that Northwest/PARS was fully aware of the American Contract, and that its requirement of "parity" would require a breach of that agreement if Hanover were to agree to the demands of Northwest/PARS. Hanover would also show that Northwest/PARS was fully knowledgeable of the physical facilities of its office, and that it did not have room available for twelve (12) terminals or the employees to operate them. In short, Hanover would show that Northwest/PARS knew that Hanover had no legitimate business reason to acquire that many terminals or the business volume to support such an additional expenses to its operation. Hanover made it known to the Northwest representative at that time that

such conduct amounted to coercing Hanover and was, in effect, inducing Hanover to breach the American Contract.

8. Hanover, on information and belief, would show that it takes approximately sixty (60) days after the execution of a contract with Northwest/PARS to receive, have installed and be able to use the PARS system. Hanover would show that had Northwest/PARS accepted Hanover's agreement to acquire the system with two terminals, the system could have been installed and operable long before the filing of this complaint and before the present May 15, 1988 date for the discontinuance by Northwest of total access in SABRE.

9. On March 4, 1988, at a meeting between Hanover and Northwest/PARS representatives, Hanover was told that in view of its objections, it could obtain the PARS system with two terminals at nondiscriminatory prices, and that a letter setting forth the terms and conditions of this understanding would be forthcoming. Between March 4, 1988 and April 8, 1988, Hanover received several calls from a Northwest/PARS representative to the effect that "I have not forgotten you." On April 8, 1988, a meeting was held at the request of Northwest/PARS wherein Hanover was informed that Northwest's headquarters office in Minneapolis/St. Paul, Minnesota had instructed that only contracts achieving "parity" would be acceptable in the Memphis market, and that Hanover would have to accept and pay for six (6) terminals or be denied the use of the PARS system. As stated,

only with PARS will certain services be available after the discontinuance by Northwest of its total access in SABRE.

10. Hanover would show that Northwest/PARS did not keep its word that the PARS system would be made available with two terminals and delayed telling Hanover that it would not live up to its word for over a month so that Hanover would be lulled into not taking action to protect itself prior to Northwest/PARS removing itself from total access. Based upon information and belief, Hanover will not be able to obtain and have the PARS system operable by May 15, 1988 even if Northwest/PARS is willing to forego its present unfair practices and methods of competition and make its system available to subscribers with the number of terminals for which legitimate business needs are present.

11. Since the April 8, 1988 meeting, Hanover has reiterated in writing to Northwest/PARS that it desires the PARS system with two (2) terminals and has received no response.

12. Northwest/PARS' conduct is in direct violation of the CRS Rules and Section 411 of the Act. Part 255.6 states that:

> (a) No subscriber contract shall have a term in excess of five years.
>
> (b) No system vendor shall directly or indirectly prohibit a subscriber from obtaining or using any other system.
>
> (c) No system vendor shall require use of its system, by the subscriber in any sale of its air transportation services.
>
> (d) No system vendor shall require that a travel agent use its system as a condition for the receipt of any commission for the sale of its air transportation services.

> (e) No system vendor shall charge prices to subscribers conditioned in whole or in part on the identity of carriers whose flights are sold by the subscriber.

13. Insistence by Northwest/PARS on "parity" violates Section 255.6(b), prohibiting a systems vendor from "directly or indirectly prohibiting a subscriber from obtaining or using another system." In the Notice of Proposed Rulemaking on CRS issued on March 27, 1984 (Docket 41686) appearing at 49 Fed. Reg. 11643, the Civil Aeronautics Board, citing evidence presented by the Justice Department, condemned the preregulation tactics of CRS vendors, specifically including "minimum of parity," which impeded the ability of agents to use multiple systems. 49 Fed. Reg at 11652 and 11655. Explaining the purpose of Section 255.6, the CAB said:

> We propose to prohibit contract provisions that impede the use of multiple systems and that impede switching between systems. In this regard, we would prohibit contracts of longer than five years duration. We are also proposing specific prohibitions on contract provisions that would limit the agent's freedom to choose among systems in connection with booking a CRS owner's flights and that require parity in the number of terminals an agent has from various CRS providers (ibid. at 11658, emphasis supplied).

The rule, Section 255.6, as so explained above and as finally adopted, is exactly as set out in the Notice of Proposed Rulemaking at page 11673 thereof.

14. Northwest is fully aware of the rule prohibiting "parity" as a condition for placement of its system with a subscriber. In comments submitted to the CAB in Docket 41686 on April 26, 1984, Northwest stated that:

> 4. Travel Agent Contracts (pp.34, 35)[1]
>
> The Board proposes specific prohibitions on contract provisions that would limit the agents to choose among systems in connection with booking a CRS Owner's flights and that would require parity in the number of terminals an agent [has] from various CRS producers. Northwest endorses this and believes the Board rule should remain as stated (pp.12-13, emphasis supplied).

15. Threats by Northwest/PARS to withhold services needed by travel agents to book Northwest flights, including last seat availability and wait list clearance as set out above, unless the agent becomes a PARS subscriber at "parity," violate Section 255.6(c), prohibiting a vendor from requiring "use of its system, by the subscriber in *any* sale of its air transportation services." (Emphasis supplied.)

16. The coercive tactics used by Northwest/PARS violate Section 411 of the Act, which prohibits "unfair or deceptive practices or unfair methods of competition in air transportation or the sale thereof." (49 U.S.C. §1381)

The coercive tactics used by Northwest/PARS are an abuse of Northwest's overwhelming market power in the Memphis market for the distribution of airline tickets and thus a violation of the antitrust policy of the United States as stated in *United States v. United Shoe Machinery Corp.*, 110 F.Supp. 295 (D. Mass. 1953), and *United States v. Aluminum Co. of America*, 148 F.2d 416 (2nd Cir. 1945).

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[1] These page numbers refer to page numbers in the Notice of Proposed Rulemaking discussed in paragraph 13, *supra*.

WHEREFORE, Hanover respectfully requests the Department to:

1. Immediately issue an order temporarily restraining Northwest/PARS, pendente lite, from demanding "parity" in the placement of the PARS system with subscribers;

2. Restrain Northwest/PARs from discriminating against Hanover, or subscribers similarly situated, who do not have the PARS system, or coercing Hanover, or subscribers similarly situated, to acquire and use the PARS system through the use of the coercive methods alleged herein;

3. Upon completion of appropriate proceedings, order Northwest/PARS to cease and desist from violations of Part 255 and engaging in unfair or deceptive practices and unfair methods of competition, including but not limited to requiring "parity" for the right to purchase and use its system, from practicing discrimination and coercion against subscribers who do not purchase, use or have its system and from refusing to sell its system to subscribers requiring more terminals than were desired by the subscribers;

4. Assess civil penalties against Northwest/PARS in such amount as the Department may deem appropriate; and,

5. Grant such other, further and different relief that the Department deems equitable under the facts and circumstances alleged herein.

Respectfully submitted,
HANOVER, WALSH, JALENAK & BLAIR

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PART 255—CARRIER-OWNED COMPUTER RESERVATION SYSTEMS

Sec.

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AUTHORITY: Secs. 102, 204, 404, 411, 419, 1102, Pub. L. 85-726 as amended, 72 Stat. 740, 743, 760, 769, 797; 92 Stat. 1732; 49 U.S.C. 1302, 1324, 1374, 1381, 1389, 1502.

SOURCE: ER-1385, 49 FR 32562, Aug. 15, 1984, unless otherwise noted.

§ 255.1 Purpose.

(a) The purpose of this part is to set forth requirements for operation by air carriers of computer reservation systems used by subscribers so as to prevent unfair, deceptive, predatory, and anticompetitive practices in air transportation.

(b) Nothing in this part operates to exempt any person from the operation of the antitrust laws set forth in subsection (a) of the first section of the Clayton Act (15 U.S.C. 12).

§ 255.2 Applicability.

This rule applies to air carriers and foreign air carriers that own, control or operate computerized reservations systems for subscribers in the United States, and the sale in the United States of interstate, overseas, and foreign passenger air transportation through such systems.

§ 255.3 Definitions.

"Affiliate" means any person owned by, controlled by, or under common control with a carrier.

"Availability" means information provided in display with respect to the seats a carrier holds out as available for sale on a particular flight.

"Carrier" means any air carrier, any foreign air carrier, and any commuter air carrier, as defined in 49 U.S.C. 1301(3), 49 U.S.C. 1301(22), and 14 CFR 298.2(f), respectively that are engaged directly in the operation of aircraft in passenger air transportation.

"Discriminate", "discrimination," and "discriminatory" mean, respectively, to discriminate unjustly, unjust discrimination, and unjustly discriminatory.

"Display" means the system's presentation of carrier schedules, fares, rules or availability to a subscriber by means of a computer terminal.

"On-time performance code" means a single-character code supplied by a carrier to the vendor in accordance with the provisions of 14 CFR Part 234 that reflects the monthly on-time performance history of a non-stop flight or one-stop or multi-stop single plane operation held out by the carrier in a CRS.

"Participating carrier" means a carrier that has an agreement with a system vendor for display of its flight schedules, fares, or seat availability, or for the making of reservations or issuance of tickets through a system.

"Primary display" means any display presented by a system vendor to comply with § 255.4.

"Service enhancement" means any product or service offered to subscribers or passengers in conjunction with a system other than the display of information on schedules, fares, rules, and availability, and the ability to make reservations or to issue tickets for air transportation.

"Subscriber" means a ticket agent, as defined in 49 U.S.C. 1301(40) of the Act, that holds itself out as a neutral source of information about, or tickets for, the air transportation industry and that uses a system.

"System" means a computerized airline reservation system offered by a carrier or its affiliate to subscribers for use in the United States that contains information about schedules, fares, rules or availability of other carriers and that provides subscribers with the ability to make reservations and to issue tickets.

"System vendor" means a carrier or its affiliates that owns, controls or operates a system.

[ER-1385, 49 FR 32562, Aug. 15, 1984, as amended by Amdt. 255-4, 52 FR 34073, Sept. 9, 1987]

§ 255.4 Display of information.

(a) All systems shall provide a primary display or primary displays that include the schedules, fares, rules and availability of all carriers in accordance with the provisions of this section. Primary displays shall be at least as useful for subscribers, in terms of functions or enhancements offered, and the ease with which such functions or enhancements can be performed or implemented, as any other displays maintained by the system vendor.

(b) In ordering the information contained in a primary display, system vendors shall not use any factors directly or indirectly relating to carrier identity.

(1) System vendors may order the display of information on the basis of any service criteria that do not reflect carrier identity and that are consistently applied to all carriers, including the system vendor, and to all markets.

(2) System vendors shall provide to any person upon request the current criteria used in ordering flights for the primary displays and the weight given to each criterion.

(c) System vendors shall not use any factors directly or indirectly relating to carrier identity in constructing the primary displays of connecting flights.

(1) System vendors may select the connecting points to be used in the construction of connection flights for each city pair on the basis of any service criteria that do not reflect carrier identity and that are applied consistently to all carriers, including the system vendor, and to all markets.

(2) System vendors may select connecting flights for inclusion ("edit") on the basis of service criteria that do not reflect carrier identity and that are applied consistently to all carriers, including the system vendor.

(3) System vendors shall provide to any person upon request current information on:

(i) All connecting points used for each market;

(ii) All criteria used to select connecting points;

(iii) All criteria used to "edit" connecting flights; and

(iv) The weight given to each criterion in paragraphs (c)(3) (ii) and (iii) of this section.

(4) If system vendors select connecting points for use in constructing connecting flights they shall use at least nine points for each city-pair, except that vendors may select fewer than nine such connecting points for a city-pair where:

(i) Fewer than nine connecting points meet the service criteria described in paragraph (c)(1) of this section; and

(ii) The vendor has used all the points that meet those criteria, along with all additional connecting points requested by participating carriers.

(d) Upon receipt of information from any carrier, system vendors shall apply the same standards of care and timeliness to loading information concerning participating carriers as it applies to the loading of its own information.

(1) If a system vendor provides special loading capability to any other carrier, it shall offer the same capability to all participating carriers in a non-discriminatory fashion as soon as technically feasible.

(2) Each system vendor shall provide to any person upon request all current data base update procedures and data formats.

(e) System vendors shall use or display information concerning on-time performance of flights only in accordance with the provisions of this part.

(1) Within 10 days after receiving the information from participating carriers or third parties, each vendor shall include in all primary schedule and availability displays the on-time performance code for each nonstop flight segment and one-stop or multi-stop single plane flight, for which a participating carrier provides a code.

(2) A system vendor shall not use on-time flight performance as a ranking factor in ordering information contained in a primary display.

(3) Except as otherwise specifically provided in this part, a system vendor shall not provide any information about on-time performance in a CRS on any air carrier or foreign air carrier unless that information is based on data reported to the Department. Any

such information shall be displayed in an unbiased fashion and in the same manner for all participating carriers that report to the Department.

(Approved by the Office of Management and Budget under control number 3024-0075; the requirement in paragraph (e) was approved under 2106-0042)

[ER-1385, 49 FR 32562, Aug. 15, 1984, as amended by ER-1391, 49 FR 40401, Oct. 16, 1984; ER-1395, 49 FR 44455, Nov. 7, 1984; ER-1396, 49 FR 46350, Nov. 26, 1984; Amdt. 255-4, 52 FR 34073, Sept. 9, 1987; Amdt. 255-5, 52 FR 48397, Dec. 22, 1987]

§ 255.5 Contracts with participating carriers.

(a) No system vendor shall discriminate among participating carriers in the fees for participation in its system, or for system related services. Differing fees to participating carriers for the same or similar levels of service shall be presumed to be discriminatory.

(b) No system vendor shall condition participation in its system on the purchase or sale of any other goods or services.

(c) System vendors shall provide upon request to carriers current information on their fee levels and fee arrangements with other participating carriers.

(The information collection requirements contained in paragraph (c) were approved by the Office of Management and Budget under control number 3024-0075)

[ER-1385, 49 FR 32562, Aug. 15, 1984, as amended by ER-1391, 49 FR 40401, Oct. 16, 1984]

§ 255.6 Contracts with subscribers.

(a) No subscriber contract shall have a term in excess of five years.

(b) No system vendor shall directly or indirectly prohibit a subscriber from obtaining or using any other system.

(c) No system vendor shall require use of its system, by the subscriber in any sale of its air transportation services.

(d) No system vendor shall require that a travel agent use its system as a condition for the receipt of any commission for the sale of its air transportation services.

(e) No system vendor shall charge prices to subscribers conditioned in whole or in part on the identity of carriers whose flights are sold by the subscriber.

§ 255.7 Service enhancements.

In the event that a system vendor offers a service enhancement to any participating carrier, it shall offer it to all participating carriers on non-discriminatory terms.

§ 255.8 Marketing information.

(a) With the exception of marketing, booking, and sales data relating to the international operations of any carrier, each system vendor shall make available to all U.S. participating carriers on non-discriminatory terms all marketing, booking, and sales data relating to U.S. carriers that it elects to generate from its system.

(b) System vendors and participating carriers shall not release marketing, booking, and sales data they generate or receive relating to international operations of any carrier, absent authorization to do so by the carrier.

(Approved by the Office of Management and Budget under control number 3024-0075)

[ER-1396, 49 FR 46350, Nov. 26, 1984]

§ 255.9 Exceptions.

(a) The obligations of a system vendor under § 255.4 shall not apply with respect to a carrier that refuses to enter into a contract that complies with this part or fails to pay a non-discriminatory fee. A system vendor shall apply its policy concerning treatment of non-paying carriers on a uniform basis to all such carriers, and shall not receive payment from any carrier for system-related services unless such payments are made pursuant to a contract complying with this part.

(b) The obligations of a system vendor under this part shall not apply to any foreign air carrier that operates or whose affiliate operates an airline computer reservation system for travel agents outside the United States that does not display the flights of all United States carriers equally with the flights of the foreign carrier.

§ 255.10 Review and termination.

(a) The Federal agency administering this rule shall conduct a review within 5 years after its effective date.

(b) Unless extended on the basis of the review specified above, this rule shall terminate on December 31, 1990.

PART 256—DISPLAY OF JOINT OPERATIONS IN CARRIER-OWNED COMPUTER RESERVATIONS SYSTEMS

Sec.
256.1 Purpose.
256.2 Applicability.
256.3 Definitions.
256.4 Display of Information.

AUTHORITY: Secs. 102, 204, 404, 411, 412, 419, 1102 Pub. L. 85-726 as amended, 72 Stat. 740, 743, 760, 769, 770, 797; 92 Stat. 1732; 94 Stat. 42; 49 U.S.C. 1302, 1324, 1374, 1381, 1382, 1389, 1502.

SOURCE: ER-1377, 49 FR 12677, Mar. 30, 1984, unless otherwise noted.

§ 256.1 Purpose.

The purpose of this part is to set forth a requirement for operation by air carriers of computer reservation systems used by travel agents so as to prevent unfair, predatory, and anticompetitive practices in air transportation.

§ 256.2 Applicability.

This rule applies to air carriers or foreign air carriers that own, control, or operate computerized reservation systems for travel agent subscribers in the United States, and the sale in the United States of interstate, overseas, and foreign passenger air transportation through such systems.

§ 256.3 Definitions.

"Carrier" means any air carrier, any foreign air carrier, and any commuter air carrier, as defined in 49 U.S.C. 1301(3), 49 U.S.C 1301(22), and § 298.2(f) of this chapter, respectively that is engaged directly in the operation of aircraft in passenger air transportation.

"Display" means the system's presentation of carrier schedules, fares, rules or availability to a subscriber by means of computer terminal.

"Subscriber" means a ticket agent, as defined in 49 U.S.C. 1301(40) of the Act, that holds itself out as a neutral source of information about, or tickets for, the air transportation industry in general, and that has entered into an agreement for the use of a system.

"System" means a computerized airline reservation system offered by a carrier to subscribers, for use in the United States that contains information about schedules, fares, rules or availability of other carriers and that provides subscribers with the ability to issue tickets.

"System vendor" means a carrier that owns, controls or operates a system.

"Designator code" means the airline designations allotted and administered pursuant to Agreements CAB 24606 and 26056.

§ 256.4 Display of Information.

(a) A system vendor shall not deny access to its system to two or more carriers whose flights share a single designator code, absent a determination by the Board that the use of the code constitutes a violation of 49 U.S.C. 1381.

(b) A system vendor shall not discriminate against any carrier on the basis of that carrier's using the same designator code as another carrier, either by display bias, or any other means relating to providing the system.

U.S. Department of Justice

Washington, D.C. 20530

1985 REPORT OF THE DEPARTMENT OF JUSTICE TO CONGRESS ON THE AIRLINE COMPUTER RESERVATION SYSTEM INDUSTRY

December 20, 1985

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Appendix

I. Introduction

This 1985 Report of the Department of Justice to Congress on the Airline Computer Reservation System Industry ("Report") is submitted to Congress by the Antitrust Division of the Department of Justice. 1/ In November 1984, the Civil Aeronautics Board ("CAB") imposed regulations on airline-owned computer reservation systems ("CRS") designed to remedy competitive problems that the Board found to exist at the time. The Board found that airline CRS vendors possessed substantial market power over other airlines, and were exercising that power in various ways to the detriment of

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1/ The committee report to accompany H.R. 2577, the Supplemental Appropriations Bill, 1985, states:

> The Antitrust Division of the Department of Justice is directed to undertake a review of the current competitive practices occuring in the airline-owned computer reservation system industry. The Division shall review the effectiveness of the existing regulations governing airline-owned computer reservation systems and their ability to prevent the exercise of monopoly market power, protect competition, and prevent consumer abuse. The Department shall review all possible options for avoiding competitive abuses in this area, including direct action by the Department, further regulation, and legislative or judicial divestiture. The report shall include a discussion of the pros and cons of each option and an analysis of how each option, including divestiture, could as a practical matter, most efficiently be accomplished. . . .

S. Rep. No. 82, 99th Cong., 1st Sess. 39-40 (1985).

airline and CRS competition. The purpose of this Report is to determine whether the 1984 CRS regulations are sufficient to correct those problems, or whether additional remedies should be considered. 2/

The Report examines whether airline vendors continue to possess CRS market power over other airlines, and if so, how it is being exercised and with what effect. In order to address these issues, the Report compares current market conditions in the CRS industry to the conditions that existed prior to November 1984. Our investigation of current conditions has focused on four areas: (1) the market shares of the various vendors; (2) entry conditions in the CRS industry; (3) screen display bias favoring the vendor airline over its competitors; and (4) pricing of CRS access and services to competing airlines.

The Report concludes that carrier-owned CRSs continue to possess market power. It also concludes, however, that this power is no longer exercised through display bias, and that it is unclear whether it is being exercised by charging supracompetitive CRS access fees to other airlines. The Report also concludes that agency consideration of additional rules or different remedies such as divestiture, further price

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2/ Any changes in the CRS rules would be implemented by the Department of Transportation, the successor agency of the CAB, which now has jurisdiction over the rules.

regulations, or collective bargaining over access fees by non-vendor airlines, would be premature at this time. The Report suggests, however, that at some future date the Department of Transportation ("DOT") might appropriately consider the promulgation of limited entry-enhancing rules.

II. Background

A. The Department's Previous Findings and Recommendations

In filings before the CAB in response to the CAB's Advanced Notice of Proposed Rulemaking, 3/ the Department concluded that there were serious competitive problems in the CRS industry. 4/ The Department's findings, which were based on almost two years of investigation, focused on four areas of particular concern: (1) market shares of airline-owned CRSs; (2) significant entry problems in the CRS industry; (3) display bias and other CRS-related bias that contributed to entry problems and significantly distorted downstream airline competition; and (4) supracompetitive access fees that dominant carriers charged competing airlines.

3/ Advanced Notice of Proposed Rulemaking -- Airline Computer Reservation Systems, EDR-466, Docket 41686, September 9, 1983.

4/ The Department filed two rounds of comments and replies with The CAB. *See* *Comments and Proposed Rules of the Department of Justice before the Civil Aeronautics Board*, November, 17, 1983, and *Reply Comments of the Department of Justice*, December 16, 1983 (*Comments I*); *Comments of The Department of Justice*, April 26, 1984 (*Comments II*).

1. Description of the CRS Industry

a. CRS Markets

The overwhelming majority of tickets for passenger airline travel is sold by travel agents and not directly by the airlines. A CRS allows travel agents to view schedules and fares, and then to make reservations and issue tickets electronically for their airline passenger clients. Travel agents purchase CRS service and either purchase or lease the necessary equipment from the various CRS providers. 5/ Thus there is a contractual relationship between travel agents as buyers and CRS providers as sellers. There also is a contractual relationship between CRS providers and the airlines that are listed on a particular CRS. Airlines want to make it convenient for travel agents to sell their flights, and thus want to ensure that they are listed on the CRSs that substantial numbers of travel agents are using. At the same time, a CRS provider desires to make its CRS attractive to agents, and to do this must secure the listings of the carriers that agents want most to be able to sell.

5/ There are six CRS systems, including: American Airlines' SABRE system, United Air Lines' Apollo system, TWA's PARS system, Eastern Airlines' System One (or SODA), and Delta's DATAS II. Only one non-airline system, MARS PLUS, competes to place automated systems with travel agencies; MARS PLUS is owned by McDonnell-Douglas Network Systems Company, which purchased it from Tymshare.

To be successful, of course, a CRS needs to attract both agents and carriers. As a CRS increases the number of agent locations at which it is used, the value to carriers of being listed on that CRS tends to increase. Similarly, as the number of carriers on a CRS increases, the value of that CRS to a travel agent tends to increase. As most agent locations tend to use only one CRS, a carrier will want to be listed, cost considerations aside, in every CRS that has a large agent block. Conversely, agents do not need to purchase more than one CRS so long as all or most of the carriers they use are listed in the one system they do purchase. So long as such a pattern persists -- so long as agents use only one CRS and most carriers are accessible through any CRS -- an asymmetry may result: agents regard rival CRS systems as more or less acceptable substitutes for one another, and purchase only one, while carriers regard access to every major CRS as essential, and want to purchase access for their listing in each one.

The demand for CRS services, whether by agents or carriers, is ultimately derived from consumers' demand for the final product, air passenger transportation. CRS services are an input into that final product; a CRS offers a communications link between agents, who must serve consumers accurately, quickly, and efficiently, and carriers, which need to sell air travel to consumers through travel agents.

b. CRS Service Offered to Travel Agents

During its 1983 investigation, the Department concluded that, for purposes of competitive analysis, the provision of CRS service to travel agents is a distinct product with no readily available substitutes. 6/

In order to assess the degree of competition in a market, it is also necessary to define the geographic limits within which products compete. In theory, travel agents could purchase a CRS from a provider located in any part of the country. In 1983, however, we generally found that particular CRS systems were less attractive to agents in those regions where the vendors do not also provide significant air transportation service to passengers.

c. CRS Services Offered to Carriers

An air carrier purchases CRS services when it pays a CRS vendor for listing its fares, schedules, and availability with travel agents, and for giving the agent the ability electronically to make reservations and to issue tickets for the carrier. In 1983, the Department concluded that CRS service offered to carriers is also a distinct product market.

6/ We applied the principles of market definition now described in the Department's 1984 Merger Guidelines. A complete CRS market definition is contained in Comments I, at 22-34.

As noted above, travel agents currently are the overwhelmingly predominant form of ticket distribution used by air carriers. A carrier cannot foresake distribution through travel agents without foregoing a substantial number of potential sales. It follows that carriers that rely on travel agents as an important source of distribution have no readily available substitutes for being listed on a CRS, even though they may use several complementary distribution methods. Most travel agents use a CRS. While other forms of distribution existed in 1983 and continue to exist, they cannot be considered substitutes for being listed on CRSs.

Of course, a carrier is most interested in being listed on those CRSs placed with travel agents that serve consumers who desire to fly to, from, or via locations served by the carrier. Therefore, carriers must be participants in those CRS systems that have a significant presence in regions where the potential passengers on the routes that the carrier is serving or seeks to enter reside.

2. Market Share and Entry Barriers

The Department's 1983 investigation showed that travel agencies accounted for about 60 percent of all airline bookings, and that nearly 90 percent of all agency-booked airline revenue came from automated agencies. Our investigation also showed the CRS industry was highly concentrated. On a national basis, American's SABRE and United's Apollo controlled 70 percent of all domestic revenue booked by travel agents, and the four largest CRS systems controlled 84 percent. On a regional level, American's SABRE system had a market share exceeding 40 percent in ten urban areas that have populations in excess of one million. United's Apollo possessed such strength in seven urban areas, and TWA's PARS had comparable power in three. 7/ These data alone suggested that a carrier seeking to provide nationwide service could not forego access to any of the major CRSs.

The Department's findings, however, showed that market share statistics do not fully reflect the market power of CRS vendors. Because most travel agencies use one CRS exclusively, if a CRS controlled a significant block of travel agents in a city from which an airline originated flights, an airline that wished to serve that city could not afford to forego access to that CRS. As a result, a CRS utilized exclusively by travel agents that accounts for as little as 20% of the domestic airline revenues in a metropolitan market (as was true with every CRS in some markets) could possess market power. 8/

7/ See Comments I at 35-46. The Department's filing sets out national and local market share statistics in major metropolitan areas throughout the United States.

8/ See Comments I at 37-45.

The Department found that in cities where a carrier was dominant, the carrier-owned CRS tended to become dominant as well. The Department also found that characteristics of the CRS industry tend to protect dominant airline-owned CRSs from new entry or expansion. First, CRS ownership by an airline allows it to charge travel agents less for use of its CRS because of the airline's ability to generate incremental revenues from the use of display bias in its favor and against its rivals. By structuring its CRS algorithm in such a way as to increase its bookings over the number of bookings it would obtain in the absence of the bias, the airline that owns the CRS can generate incremental revenues from its air passenger service operations. The greater the incremental revenue, the less the airline CRS needs to charge travel agents for CRS services. This inhibits the ability of other CRSs to compete because they cannot match the dominant CRS's prices to the agents.

Second, an airline that dominates the "downstream" air passenger traffic in a region enjoys a substantial advantage over rivals in the CRS market in that region. Because agents prefer to have the best information about the airline they most frequently book, there is a significant advantage to the CRS airline that also offers the most scheduled airline service in a particular region. An airline-owned CRS in such a region is able to provide agents with highly accurate "last seat" availability data (i.e., "real time" information on seats still available for sale) from its central reservation system for the agent's most popular flights, as well as such desired enhancements as boarding passes on its own flights.

For both of these reasons, there is a mutually reinforcing effect between the CRS share and scheduled airline transportation share: the greater the air share, the more attractive the CRS, and the greater the CRS share (especially with bias), the easier to gain or hold air share. 9/

The Department found that entry problems were further compounded because dominant CRSs had impeded entry by requiring travel agents to enter into long term contracts that were virtually exclusive. 10/ This situation, plus the fact that changing from one CRS to another would cost from $5,000 to $20,000 per agency, meant that existing dominant CRSs enjoyed a significant advantage over would-be entrants. Indeed, the Department estimated that because of the need to enter the CRS market with highly sophisticated software and to employ scarce, highly trained programmers, the time and resources required to

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9/ The result is a possible "dual entry" requirement: in order to compete for CRS sales in an area, a vendor may also need to establish substantial air service in that area. See Comments I at 69-70.

10/ See Comments I, at 59-61. Many subscriber contracts contained liquidated damage clauses based on 80% of travel agent CRS costs. See Comments I, at 61.

enter were large, perhaps as high as $100 million 11/ and six months to two years. 12/

3. Exercise of Market Power by CRS Airlines

In addition to finding that all airline CRS vendors possess substantial market power in some areas, and that nationwide carriers could not afford to forego listing on any major CRS, the Department's investigation revealed a number of methods by which carrier-vendor CRSs used their market power to impede competition. American and United each exercised their market power to disadvantage rival airlines through display bias and selective suppression or manipulation of information on display, and through pricing strategies. 13/

Display bias against competitors took two major forms. The first of these entailed the development of algorithms that systematically imposed inferior displays against competing carriers. This conduct involved the assignment of penalty points and other carrier-specific bias factors in the CRS algorithm against the flights of non-CRS vendor carriers, with

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11/ See Comments I, at 71.

12/ Id.

13/ See Comments I, section IV, at 73-107. As noted in the Comments, each of these practices is a method of charging a "price" to the carrier for access to a CRS, whether directly (segment fees) or through diverted revenue (denied access, bias). See Comments I, at 74, n*.

the effect of placing such carriers' flights lower in the display. 14/ In addition, screen bias could selectively be increased to give the CRS vendor an increased advantage against a particular carrier 15/ or in a particular market. 16/

The Department also found that American and United exercised market power by setting access prices to carriers at supracompetitive levels. By adjusting their charges to other airlines, American and United were able to increase rivals' costs relative to their own and thereby to decrease competition in downstream air transportation markets. For example, United adopted a general policy of charging higher prices to those carriers that were their direct airline competitors. 17/

14/ Such bias diverted revenue toward the CRS vendor because a high percentage of bookings are made off the first CRS display that a travel agent receives upon a query to the CRS system. According to an American Airlines survey in December 1981, 53.5% of all SABRE sales came from the first line on the screen displayed, and almost 92% from the first screen. See Comments I, at 81.

15/ For example, from November 1981 to February 1982, American's SABRE deleted from its display Continental Airlines' "supersaver" fares in 65 markets. Similarly, United refused for 18 months to allow Frontier Airlines, a direct competitor of United in many markets, "cohost" status in Apollo. This action resulted in Frontier having inferior displays on Apollo. Similar action was taken by United with respect to other carriers for lesser periods of time.

16/ In 1981, for example, American responded to New York Air's competing entry into the LaGuardia - Detroit market by altering SABRE's display logic so that New York Air's flights would be listed far down in the display sequence.

17/ See Comments I, at 122-144.

American also used CRS pricing selectively to respond to direct competition. 18/

B. The Department's Recommendations

In order to prevent further loss of competition, the Department recommended strong remedial action when the CAB issued its Advanced Notice of Proposed Rulemaking on September 9, 1983. The Department proposed industry-wide rules intended to correct the market problems that then existed, while still permitting ample latitude to promote continued innovation and efficiency in CRS development.

The Department recommended that the CAB impose three basic requirements: (1) airline CRS vendors should be required to provide access to schedule, fare and availability data for their flights to competing CRS vendors, and should allow ticketing by other vendors; (2) CRS vendors and travel agency subscribers should be limited to signing non-exclusive contracts of relatively short duration; and (3) carrier-specific bias should be prohibited in the display or the loading of flight information.

The intent of the rule requiring access to data was to allow any vendor that was willing to invest in basic CRS technology to offer listings of all major airlines so that it

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18/ See Comments I, at 108-115.

could compete for travel agent business. The Department contemplated that such mandatory access to all schedule and fare data would greatly limit the ability of airline CRSs to deter entry and engage in other anticompetitive strategies against CRS rivals by witholding or otherwise limiting the availability of essential data. Similarly, it was believed that the requirement of non-exclusivity in subscriber contracts would also facilitate entry by providing increased opportunities to new firms and incumbents seeking to enlist new subscribers. The Department also hoped that the elimination of biased displays would further limit the ability of dominant-carrier CRSs to inhibit entry and otherwise distort competition in the downstream air transportation market. The Department believed that the recommended rules would facilitate the entry of both new entrants and existing CRS vendors into geographic areas dominated by CRS vendors with large shares locally. Moreover, even in the absence of actual new entry, the Department hoped that the possibility of new entry would inhibit incumbent CRS providers from charging excessive access fees.

Although other parties recommended pricing rules, the Department declined to recommend one. The Department preferred to promote entry through the proposed rules on access and bias and to rely on increased competition over time to dissipate the market power of American and United. Once that market power was dissipated, the ability of these firms to charge supracompetitive access fees would likewise be substantially reduced and competitive pricing would be achieved without resort to price regulation.

C. The CAB Rules

In July 1984, the CAB issued final rules applicable to bias and pricing of CRS services. An essential feature was the requirement that so-called "primary" displays be unbiased. 19/ In order to encourage entry into the CRS industry and to prevent CRS vendors from discriminating among carriers in the provision of new services, the CAB promulgated other rules that related to subscriber contracts, 20/ the distribution of marketing information, 21/ and the sale of "service enhancements" to other carriers. 22/

The CAB also imposed a pricing rule that required a carrier-owned CRS to charge all carriers the same access fee. 23/ In Comments II, the Department noted its opposition to such a rule. A major objection was that such a rule would

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19/ 14 C.F.R. §255.4(b).

20/ 14 C.F.R. §255.6.

21/ 14 C.F.R. §255.8.

22/ 14 C.F.R. §255.7.

23/ 14 C.F.R. §255.5(a).

tend to undercut the anti-bias rules 24/ by allowing the vendor to bias its display against a carrier that refused to pay the stated access charge. 25/ If the access fee were set high enough, a significant number of carriers would be subject to such bias. The CAB did not act on the Department's recommendation to modify this rule, however. The CAB also failed to impose mandatory access to schedule and fare data, as the Department had recommended.

III. Evaluation of CRS Market Power Since Imposition of the CRS Rules

A. Changes in Market Shares Under the CRS Rules

Market shares of the CRS vendors, measured as percentages of both travel agency locations and travel agency revenues, have not changed significantly since implementation of the CRS rules. For purposes of this Report, there are three relevant time periods that the Department used to calculate and compare market shares: the period during which the Department conducted its 1983 CRS investigation, the time at which the CAB implemented the CRS rules, and the present. Table A summarizes

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24/ The Department also warned that the CAB rules would allow the development of biased "secondary screens" that would undercut the anti-bias rule. This objection was met in subsequent DOT action prohibiting such biased secondary screens. *See* Part III. C, *infra*.

25/ *See* Comments II, at 24-26.

the changes in market share since the Department's initial investigation in 1983. 26/

TABLE A

TREND IN CRS MARKET SHARES, 1983-PRESENT

CRS	AGENCY LOCATIONS 1983	AGENCY LOCATIONS November 1984	AGENCY LOCATIONS Present	AGENCY REVENUE 1983	AGENCY REVENUE November 1984	AGENCY REVENUE Present
APOLLO (UA)	28%	26%	24% +	31%	29%	28%
DATAS II (Delta)	5%	10%	10%	2%	5%	6%
MARS PLUS	2%	1%	1%	2%	1%	1%
PARS (TWA)	16%	14%	13%	12%	11%	10%
SABRE (AA)	41%	34%	35% +	49%	45%	46%
SODA (EA)	8%	15%	17%	5%	9%	10%
TOTALS	100%	100%	100%	100%	100%	101%

Extreme caution should be used in drawing any conclusions from Table A because the time periods may be too short, and the changes in share may be too small, to reflect genuine trends. Furthermore, there may be meaningful trends in market shares that are not shown by the data. First, the "November 1984" and "Present" revenue shares shown in Table A are based partially on projections from our 1983 data, and therefore the actual shares may differ. Second, no data by city are available. As we noted in Comments I, the shares in individual urban areas

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26/ A detailed explanation of the derivation of Table A is contained in the Appendix to this Report.

often show even higher concentration than the national shares, and it is not possible to tell whether this pattern has changed from the national shares contained in Table A.

Taking the data at face value, however, Delta and Eastern both showed strong growth between the Department's initial investigation and prior to the imposition of the CRS rules. Both have leveled off since the rules have been in effect. MARS PLUS and TWA have lost share consistently since 1983. United and American both lost share initially but have maintained their position in an expanding market under the rules. Of the smaller vendors, only Eastern has expanded during the post-rules period, and no new entry has occurred.

B. Changes in Entry Conditions Under the CRS Rules

1. The CRS Rules Have Improved the Prospects for Entry by Eliminating Bias and Proscribing Certain Terms in Travel Agent Contracts

The CRS rules' elimination of carrier-specific bias removed an important constraint on entry by non-airline CRS vendors and on expansion by existing carrier-owned systems. Because an airline-owned CRS can earn the additional air transportation revenues that derive from the display bias in favor of the carrier-vendor, non-airline vendors were less likely to enter the industry prior to the rules prohibiting bias. 27/

A second important means by which the CAB rules sought to improve entry conditions was the limitation on certain terms in travel agent contracts that made enrolling agents more difficult. One rule requires that travel agent contracts not exceed five years. 28/ Because of this rule, a greater proportion of travel agent contracts will expire at any point in time than prior to the rule, which should enhance the ability of entering or expanding CRSs to gain larger travel agent bases.

It is not clear that the full benefits of the rule will be realized during the next several years. United applied the rule only prospectively, leaving its existing long-term contracts in effect. United has also re-signed most of its agents to new contracts, so that very few United contracts

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27/ For the same reason, airline vendors are less likely to expand into regions where they do not maintain significant air service. A complete elimination of bias would ameliorate this problem, but elimination of all pro-host advantage is probably impossible. To the extent that there continue to be subtle host advantages in the system that yield carrier-vendors incremental revenues, non-airline vendors may still be at a significant enough disadvantage to be deterred from entering. We conclude, however, that current complaints of host advantages or bias are not sufficient to warrant further anti-bias rules. See Part III.C, infra.

28/ 14 C.F.R. §255.6(a).

expire during the next three years. 29/ The result is that despite the new rule, United agents are not very vulnerable to switching by new entrants during the next few years. 30/

Another rule prohibited exclusivity restrictions in travel agent contracts. 31/ This rule assists entry because it makes it easier for a new CRS to gain a toehold in an agency as a second system, with the opportunity of expanding over time.

Despite the CRS rules' attempt to facilitate entry into the CRS market, there is at present only modest evidence of increased entry or expansion. The Department is not aware of any non-airline companies that have actively considered either de novo entry or entry by acquisition since the imposition of the rules. As to expansion by current systems, the market share data discussed in Part III.A above shows expansion by some of the smaller systems prior to the rules but fails to reveal that significant expansion of such systems with the possible exception of SODA has yet occurred. 32/ If anything,

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29/ United reports 77, 52, and 55 contracts expiring in 1986, 1987 and 1988 respectively, compared to about 1000, 1300 and 1300 for American.

30/ Conversely, in five years, United may be the most vulnerable vendor if most of its contracts expire during this relatively short period.

31/ 14 C.F.R. §255.6(b).

32/ Even Eastern's success may be overstated by the market share data since its current claimed locations include contracted for but not currently installed subscribers.

the data suggest that smaller systems have contracted under the rules. The CRS rules are barely one year old, however, and their effect on market structure is not yet clear.

2. CRS Entry Continues to be Uncertain and Costly

Despite the CRS rules, entry or expansion by existing vendors continues to be both costly and uncertain due to new and pre-existing market problems. These factors will affect the ability of NIBS, 33/ the most likely entrant into the CRS industry, successfully to enter the CRS industry by acquisition and expansion of one of the existing systems.

a. Advantage of the Dominant Airline-Vendor

CRS systems owned by airlines may continue to have an advantage in the CRS industry because travel agents continue to demand last seat availability and enhancements such as boarding passes on the major carrier that serves a particular air transportation market. This advantage may have diminished, however, because of innovations such as enhanced total access systems that enable travel agents to get last seat availability

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33/ NIBS is the Neutral Industry Booking System, a proposed joint venture of 29 domestic and foreign nonvendor carriers. NIBS is studying the possibility of purchasing one of the smaller existing CRSs, i.e., Datas II, SODA or PARS.

and boarding passes on carriers other than the carrier-vendor. To the extent that this technology can be developed such that there is no functional difference between the services offered with respect to a dominant carrier by its own CRS and by a competing CRS, this comparative advantage will be further eroded. 34/

b. Liquidated Damages Clauses

Liquidated damages clauses in travel agent contracts tend to increase the costs to an agent of switching systems. As a general matter, such clauses can be desirable where they provide a reasonable measure of actual damages suffered by a vendor if the contract is breached. In the absence of such protection, a vendor may otherwise not offer the CRS service to agents except at a higher contract price. On the other hand, the widespread use of such clauses in the CRS industry can make conversion of agents by a new or expanding entrant more costly and difficult.

Both before and since the rules have gone into effect, American, United and TWA have imposed liquidated damage clauses based on the amount of fees the agent would owe over the life

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34/ This assumes, however, that the dominant carrier does not withhold enhanced access to its data when the technology is available and that the competing CRS is willing to pay for the service.

of the contract. American and United now assess 80% of this figure; TWA assesses 100%.35/ /

Shortly after imposition of the CRS rules, the largest CRS vendors strengthened these clauses in their travel agent contracts. All three added a measure of damages that is based on projected lost access fees from other carriers over the life of the contract due to the subscriber's booking activity. 36/

Delta, Eastern and MARS PLUS do not use lost access fee formulas in their current contracts. 37/ Eastern's subscriber

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35/ The longer the term of the contract, of course, the higher the calculation of liquidated damages is likely to be.

36/ The lost access fee formulas in the various vendors' current standard liquidated damage clauses are as follows:

American: 200 (the average number of revenue reservation bookings per SABRE set per month) x $1.75 (the segment fee) x months remaining in the contract x number of CRT sets used by the agent.

United: 50% of the agent's actual average monthly bookings per CRT (based on the first 6 months of the contract) x the current segment fee x months remaining in the contract x number of CRT sets used by the agent.

TWA: 215 (the average number of revenue reservation bookings per CRT set per month) x $1.75 (the segment fee) x months remaining in the contract x number of CRT sets used by the agent.

37/ Delta's prior travel agent agreement, in effect between June 1984 and February 1985, contained specific liquidated damages provisions. After installation the liquidated damages were 75% of the monthly equipment and support charges x the number of months remaining in the contract. The liquidated damages for breach before installation were 3 months equipment and support charges plus forfeiture of the deposit.

contracts currently contain damage clauses based on 100% of the charges due from the agent for the remainder of the term, and MARS PLUS currently uses a clause that specifies damages of three times the monthly charges under the contract regardless of number of months remaining.

The new clauses used by American, United and TWA increase an agent's potential liquidated damages liability, and increase the cost of conversion. Again, the longer the contract, the higher the calculated damages will be. Applying American's lost access fee formula to a six-CRT agency that is halfway through a five-year contract results in calculated damages for lost access fees alone of $63,000 (200 x $1.75 x 30 months x 6 CRTs), several times the damages due under pre-rule clauses. 38/

The competitive significance of the new liquidated damages clauses depends on the importance of buy-outs to the success of a new entrant in achieving an adequate agent base. In addition to buyouts, a CRS can expand its agent base by converting agents with expiring contracts, by enrolling new or expanding travel agencies, and by automating previously unautomated agencies. Unless the number of agents in the latter three categories is at least as large as the minimum necessary to

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38/ NIBS estimates the cost of conversion for a similar agent, even without paying damages for lost access fees, to be about $22,000.

ensure the survival of a new or expanding CRS, buyouts are necessary for the new CRS to affect the pricing and behavior of the dominant CRS vendors.

The travel agent industry has increased in number from about 20,000 agencies at the time of our 1982-1983 investigation to over 27,000 agencies by 1985. 39/ At the same time, according to the American Society of Travel Agents, the proportion of travel agents that are automated has increased from 65 percent to nearly 90 percent. While an increasing rate of automation seems, therefore, unlikely to yield a substantial number of new agent locations for CRS vendors, continued growth in the number of locations could provide an important source of locations for any new CRS entrant.

There is some doubt that the recent growth in the travel agent industry can be sustained. Some trends in the industry -- namely, consolidations and mergers into travel agency chains, and a slowing in the rate of entry into the industry -- suggest that CRS entrants may be more limited in their ability to expand agency locations by this method than was the case in the past. The CAB's decision in the Competitive Marketing Investigation 40/ might have been expected to increase entry into the travel agent industry,

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39/ The Travel Agent, November 25, 1985, at 50.

40/ CAB Docket 36595, Order served December 29, 1982.

especially by non-traditional travel agents. It does not appear, however, that the Competitive Marketing rules have substantially increased the pool of potential subscribers for a new or expanding CRS. Without substantial growth in the travel agent population, CRS vendors are likely to compete more aggressively for each of the incumbent travel agent locations, especially the larger, higher-volume locations. Thus, depending on the number of contract expirations per year and the location and size of these contracts, contract buy-outs may become the most important type of competition in the CRS industry. 41/

In any case, the evidence to date does not justify any new regulation of such clauses. Developments may establish that buy-outs and the sign-up of new agents is sufficient to allow new entry and expansion or at least to provide a sufficient threat of new entry or expansion to deter an exercise of market power by incumbent CRSs. Moreover, new rules that attempt to deal with these clauses might impose substantial costs that we cannot safely estimate at this time. For example, the elimination of liquidated damages clauses may increase CRS fees and may increase the administrative costs of buy-outs because

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41/ If substantial entry by traditional and non-traditional agencies does occur, then competition among vendors for the new agents may reduce the level of liquidated damages to be found in future travel agent CRS contracts.

of uncertainty as to the appropriate level of damages to compensate the incumbent for the travel agent's termination of its membership in the CRS.

c. Development Costs

De novo entry into the CRS industry seems very remote because the costs of developing the software and hardware required for a CRS that offers performance comparable to the existing systems appear to be prohibitive. Our 1983 investigation found that entry would require a minimum investment of $100 million and six months to two years of time. 42/ Such entry would entail the hiring of experienced ACP (airline computer program) programmers from existing vendors, presumably at a substantial premium over current salaries. Subsequent functional and technological advances by leaders in the CRS industry since 1983 likely have increased the difficulty, and therefore the cost, of developing a CRS. Finally, a new entrant would start with no travel agency base and thus would have a difficult time convincing both carriers and travel agents of the advantages of converting to the new system. There is no evidence that there has been any reduction in the cost of *de novo* entry.

42/ *Comments I*, at 71.

3. Entry by Acquisition -- the NIBS Project

Given the advantages of airline-owned CRSs, and the high development costs of a new CRS, the most likely form of entry, and that considered actively by the NIBS joint venture, is the acquisition of an existing system. Although entry by acquisition does not increase the number of competitors, it can strengthen a small competitor and thereby stimulate additional competition.

Entry by acquisition raises issues different from those of a non-airline de novo entrant. First, acquisition of an existing CRS has the advantage of not requiring the development of a CRS from the ground up. On the other hand, such an acquisition would entail nontrivial transaction costs, including the negotiation of an agreement concerning the separation of the internal reservation system of the selling airline from the rest of the CRS that is to be sold to the purchaser. Such negotiations would entail, among other things, an agreement on the value of the stand-alone CRS, technical problems associated with dividing the central processing and data storage facilities, and the development of long-term agreements that might allow the CRS and the airline to operate and expand jointly a shared computer facility. It is unclear whether such negotiations can be concluded at a sufficiently low cost; as of this date, the only effort to conclude such an arrangement -- that of the NIBS joint venture discussed below -- has yet to reach fruition.

A second factor affecting the ease of entry is the importance of expanding the existing agency base of a CRS in competition with other CRS vendors. While the cost of such expansion from the existing base of agents using the acquired CRS is probably less than the cost to a de novo entrant of lining up agents from scratch, these costs are likely to be substantial. Such expansion entails a commitment both to invest funds to maintain and develop the system, as well as to defray the costs associated with converting travel agents from other systems. Perceived differences in the quality of the American and United systems and that of the other airline CRS suggest that investments in improving the capabilities of the system will be necessary for successful entry.

The joint venture nature of NIBS presents both potential advantages and problems for the venture. NIBS includes most of the major domestic carriers that currently do not own a CRS. These carriers collectively account for a substantial volume of airline traffic in the United States, covering a wide geographic area. This factor should enhance the ability of NIBS to market its CRS services to travel agents nationwide. Another advantage of an airline joint venture such as NIBS is its significant incentive to enter. Member carriers have told the Department that American and United would dramatically alter the structure of the air transportation distribution system if they were able to convert CRS subscribers into exclusive dealerships and franchises selling only the air travel services of the airline that owns the CRS. The threat of losing major portions of the distribution system for their product serves as an important motivating factor inducing the NIBS carriers to continue to pursue entry into the CRS industry.

Yet, the joint venture aspect of NIBS means that carriers with diverse interests and financial capabilities, as well as widely varying size, must collectively agree on numerous aspects of a risky and costly investment. Successful purchase of a CRS system will certainly require substantial investment of funds by the member carriers, both for the initial purchase and for subsequent marketing and expansion of the system. Moreover, successful operation and expansion of the system requires a set of rules governing enhancements, expenditures and marketing that must be agreed upon by the member carriers. The necessary coordination and cooperation will entail some costs that may not be faced by a CRS owned by a single airline.

While American and United currently provide complete schedule and fare information to the other CRS vendors, they conceivably could withhold it from NIBS because of a concern that a successful NIBS CRS would reduce their own market power. This could serve as an impediment to successful entry by NIBS because it is very unlikely that the NIBS venture could succeed without being able to list the schedules and fares of the two largest domestic airlines. On the other hand, such a tactic could prove very harmful to the participation by American and United in the passenger air service market because of the resulting inability of NIBS travel agents to book American and United through that CRS.

C. Display Bias Under the CRS Rules

As previously stated, the final CRS rules that went into effect in November 1984 43/ prohibit carrier-specific bias in constructing screen display order. 44/ The rules have eliminated display bias of the type that had been pervasive prior to the promulgation of the rules, with carrier identity heavily weighted in the CRS display algorithm. In addition, the problem of so-called secondary screens, whereby a dominant CRS provides an unbiased primary screen that is either ignored or "locked out" by agents in favor of a significantly more

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43/ CAB Final Rule, ER - 1385, 49 Fed. Reg. 32562 (August 1984), 14 C.F.R. §255.1-10.

44/ 14 C.F.R. 255.4(b) of the CRS regulation provides that:

"In ordering the information contained in a primary display, system vendors shall not use any factor directly or indirectly relating to carrier identity.

(1) System vendors may order the display of information on the basis of any service criteria that do not reflect carrier identity and that are consistently applied to all carriers, including the system vendor, and to all markets."

convenient secondary screen biased in favor of the vendor, has also been eliminated. 45/

The anti-bias rules do not apply, however, to carriers who elect not to participate in or pay access charges to a CRS. 46/ CRS vendors have assessed display "penalty points" and/or omitted information about such flights from display. 47/ The impact of non-participant bias on airline competition appears to be limited, however, because the number of non-participants appears to represent a relatively small percentage of carriers. Moreover, all vendors report that they treat all non-participants equally. Thus, one concern we had with the non-discriminatory price rule, establishment of prohibitive access prices by vendors in order to reintroduce selective bias against all or some airlines, has not materialized.

Nonetheless, the Department has continued to receive bias-related complaints from participating carriers regarding bias in various aspects of CRS operations. These complaints fall into two major areas: (1) reintroduction of bias through

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45/ The secondary screen problem was not remedied by a formal rule, but by voluntary agreements reached last spring between the Department of Transportation and each of the CRS vendors.

46/ 14 C.F.R. §255.9(a).

47/ Typically, a CRS will not display the connections of a non-participant.

manipulation of the display algorithm; and (2) the advantage a host gains from access to marketing data generated by the CRS.

1. Reintroduction of Bias

While the Department has found no persuasive evidence of express bias of the type commonly used before the present CRS rules, it continues to receive complaints from carriers that CRS vendors have used the CRS display to gain what the complainants consider an unfair competitive advantage.

a. Pro-Host CRS Algorithms

CRS ownership provides substantial opportunities both to develop and to employ algorithms that, while not explicitly carrier-specific, have the practical effect of favoring the flights of the airline vendor (or "host"). Despite the overall effectiveness of the rules in eliminating more overt forms of carrier specific bias, the possibility remains that hosts could introduce more subtle forms of display bias in order to provide themselves with a competitive advantage. We are aware of at least three specific complaints from carriers about algorithms: (1) the display of "class of service;" (2) the display of interline versus on-line (*i.e.*, same airline) connections; and (3) the selection of connecting points.

American's SABRE system permits American Airlines a maximum display of eight classes of service for all flights; all other carriers are limited to a maximum of five. United's Apollo system currently limits all carriers, including United, to five, although it is capable of displaying more. American states that it plans to expand the display of classes of service offered to other carriers in early 1986. United has taken the position that as long as the number of classes that can be displayed is the same for all airlines, it is in compliance with the rules. The net effect in either case is that carriers desiring to offer more than five classes of service cannot do so through either SABRE or Apollo.

The provision and pricing of classes of service can be an important factor in airline competition on a large number of routes. A limitation on the number of classes of service that can be displayed could have a significant effect on the vigor of airline competition if it unnecessarily placed limits on this type of competition. Moreover, a display that affords a greater range of display of classes of service to one airline, as does the SABRE display, could provide that airline with a potentially significant competitive advantage. Any problem with this differential number of available displays, however, should be eliminated when American expands the display for other carriers in 1986.

Although in the absence of cost constraints it would be preferable to display all the classes of service offered by a carrier, a requirement that all classes must be displayed could impose substantial and unnecessary costs on the CRS. We cannot conclude at this time that the benefits of requiring CRSs to display an unlimited number of a carrier's service classes would outweigh these costs.

Carriers have also complained that some systems unfairly favor so-called "on-line" connections over arguably superior interline connections. For example, on either Apollo or SABRE, the display algorithm will favor an on-line connection even though an interline routing might be closer to the requested departure time and have a shorter elapsed time.

Bias in favor of on-line connections will tend generally to work to the advantage of large national carriers such as American and United, that can serve a relatively high number of passengers on-line. On the other hand, algorithms that favor on-line connections may in fact be based on consumer preferences if, for example, travelers perceive that transfers are easier between on-line flights or that baggage handling is more secure on such flights.

A variation of the interline/on-line complaint also occurs with reference to the increasingly common practice of national carriers entering into "marketing arrangements" with regional carriers. The complaints typically come from the smaller connecting carriers who have not entered marketing relationships with larger carriers but feel pressured to do so in order to improve their CRS displays. Such marketing arrangements are of two types. The first results in the two airlines sharing a single designator code. The identifying code of one of the airlines, generally that of the larger national or regional carrier, is assigned to the flights of both airlines on routes where they offer connecting service. 48/ In addition, connecting flights between other (i.e., non-code sharing) airlines that have entered "marketing arrangements" have also been accorded priority in Apollo over pure interline connections, but not as high as on-line connections.

Finally, a vendor could conceivably use an apparently neutral connecting point selection criteria to favor its own hubs and exclude those of its competitors. The Department has received complaints that Apollo and SABRE are, respectively, limiting carriers to select one and two connecting points even though more are available through the CRS algorithm. The net result, according to the complaints, is that carriers serving a market via two (or three) connect points that do not meet the vendor's neutral selection criteria are prevented from listing their service. 49/

48/ 14 C.F.R. 256.1-4 (1984). Under DOT rules the connecting flights of airlines that "share a single designator code" must be treated as on-line connections, thus giving them a higher display priority than other interline flights.

49/ 14 C.F.R. §255.4(c) prohibits the use of carrier specific criteria (1) to construct the display of connecting flights,

Footnote Continued

b. Other Bias-Related Complaints

A CRS algorithm typically weighs elapsed time in such a way that flights with shorter flying times tend to appear higher on the display. True elapsed flying time on the same route can vary on the basis of type of equipment, weather conditions, seasonal and other objective factors. For a variety of reasons, airlines often have an incentive to minimize elapsed flying times listed in their schedules.

American Airlines has recently changed the criteria by which it establishes the elapsed times of its own flights on routes where it faces direct competition. On such routes, American has routinely entered elapsed flying times that match the lowest elapsed time of other competing carriers, regardless of the true elapsed time. 50/ On routes where it does not face significant direct competition, American has continued to calculate elapsed flying time based on its previous criteria.

49/ Footnote Continued

(2) to select the connecting points to be used to construct city pairs, or (3) to select "edit" criteria for inclusion of connecting flights. In addition, 255.4(c)(4) requires a minimum of nine connecting points, subject to certain specified exceptions. The exceptions are provided in 255.4(c)(4)(i) and (ii) for circumstances where nine connecting points cannot be generated consistent with the CRS criteria and where there are insufficient requests by carriers for additional points.

50/ American contends that this practice was started in response to similar conduct by some of its competitors.

Thus, American's flights with such shortened elapsed time appear higher in the SABRE display algorithm than flights of carriers that choose to use actual elapsed time in constructing their schedules. 51/

The Department has also received complaints that agents inquiring on Apollo for a fare on any airline other than United automatically received the United quote as well. Agents asking for a United quote, however, did not receive a quote for any other airline. United states that this practice has been discontinued.

c. Conclusion: The Reintroduction of Bias

The Department continues to believe that the elimination of carrier-specific bias is necessary if airline passenger markets are to function competitively. Some of the complaints received by the Department appear to raise issues under the anti-bias rules; however, additional rules are not needed to resolve these issues. The CRS rules already prohibit use of any factor directly or indirectly relating to carrier identity. 52/ They do not, however, purport to mandate the use of any particular formula for display provided that it is carrier neutral. To

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51/ It should be noted, however, that non-vendor carriers can also engage in this conduct.

52/ 14 C.F.R. §255.4(b).

the extent that factors used in the algorithms constitute an indirect form of carrier-specific bias, they violate existing anti-bias provisions.

Whether a specific algorithm, such as limitations on service classes or on-line priority, violates the anti-bias rule can be a difficult and highly fact-bound issue. 53/ The issue would not be adequately resolved by more rules, however. It can only be addressed on a case-by-case basis.

The use of particular algorithms can also raise difficult issues because of the need to distinguish between displays that are "service enhancements" and those that are a form of display bias. The rules require that CRS-vendors offering "service enhancements" do so on a non-discriminatory basis among participating carriers but permit CRS vendors to retain such enhancements for their exclusive use. 54/ Thus, whether the display of an additional service class is an enhancement or a form of prohibited display bias is also a difficult issue, but one for which the rules as written provide adequate coverage of

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53/ The same can be said of the complaints that the Department has received with regard to connecting points, elapsed time criteria, and fare quotations.

54/ 14 C.F.R. §255.7. "Service enhancements" are defined as any services offered except the essential core services of CRS: "[T]he display of information on schedules, fares, rules and availability, and the ability to make reservations or to issue tickets for air transportation." 14 C.F.R. §255.3. The Department did not advocate any regulation of enhancements before the CAB and does not do so now.

airline CRS vendor conduct in this area. Therefore, the Department does not believe that a revision to the CRS rules is indicated at the present time.

2. Marketing Information

CRSs are capable of generating detailed information about booking patterns in the airline industry. They are not, however, currently able to reveal whether a passenger actually travelled on the flight booked, and they are unable to generate revenue data by market. 55/ Moreover, each CRS can provide information only about bookings made by its own subscribers.

Section 255.8 of the CRS rules requires that vendors make any marketing, sales, and booking data that they generate from their systems available to participating carriers on non-discriminatory terms. Some carriers maintain that having access to this information on a real-time basis enables an airline to respond promptly to changes in market conditions. These carriers have expressed concern that they do not have adequate access to this information and that vendors have continued to use their superior access to market information to gain disproportionate booking shares in certain markets.

55/ American maintains, for example, that SABRE can only produce information by segment, not by origin and destination. For marketing purposes, booking patterns by market are more valuable than by segment since many or most passengers have no reason to be at a hub city such as Dallas other than for purposes of connection.

United, American, TWA and Delta regularly generate market data from their systems; Eastern does not. Of the four vendors that do generate data, each offers for sale to participating carriers magnetic tapes containing information on each subscriber transaction entered on the system. 56/ United generates data from its CRS on a daily basis, and also provides its subscribers with daily tapes. American generates its marketing data on a monthly basis, and states that it is made available to those carriers who subscribe to it at the same time that it is available to American. TWA generates at least some data on a weekly basis, while its subscribers receive a monthly compilation.

Some carriers have complained that the prices charged for these tapes are excessive. United charges $10,000 per month for this service, Delta is asking $7,500 per month and TWA charges $5,000 per month. American charges one dollar per month per subscriber on the SABRE network, resulting in a current monthly charge of slightly over $10,000. Five carriers have contracted to purchase data from United, three carriers have elected to purchase marketing data from American, and one has contracted to purchase data from TWA. No carriers have elected to purchase marketing data from Delta.

56/ The specific information contained on the tapes varies from vendor to vendor, but it generally includes the following: the airline code, flight number, flight date, origin and destination of each segment, class of service, number in party, booking status, and agent name and location.

Carriers have also complained that the information is provided in "raw" form and requires extensive processing before it can be used. The development of programs to process the data from the form in which it is provided to usable form is claimed to be expensive and time consuming. In addition, some carriers have suggested that the vendors may be generating more data than they are providing on the marketing tapes, and that they may have access to the information sooner or more frequently than they provide it to their subscribers.

CRS-generated marketing data of the type currently produced does not, standing alone, appear to present a competitive problem. Consistent with its general approach to "enhancements," the Department did not advocate any regulation of marketing information in 1983, and we do not do so now. 57/ Although such information is useful in enabling an airline to target specific segments and agents with special incentives, such as override commissions, access to the data is not essential for an airline to compete, in contrast to the necessity of access to CRS services. Carriers have alternative sources of information to help them determine to which markets

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57/ As with other bias-related complaints, superior access to data may constitute an additional host advantage of CRS, yet fall short of constituting an essential service needed to compete. Conceivably enough of these small advantages could exist to present competitive problems, but it does not appear further regulation of marketing data is called for at this time.

or agents to devote more resources. All carriers know when their own traffic levels fall in a given city-pair, and they know when their bookings with individual agents fall. Carriers can respond to both situations with overrides, lower prices or other strategies. The current availability of booking information by segment by agent and the price and form of such data do not raise significant competitive problems and thus cannot merit regulatory intervention. Moreover, the costs of trying to regulate the price, content, and timing of the generation of such marketing data are likely to be very significant.

D. Access Fees to Carriers Under the CRS Rules

1. Current Access Fees

In its CAB filings on the CRS industry, the Department indicated its concern that CRS vendors had the incentive and ability to exercise market power. Even if bias is eliminated, CRS vendors can exercise market power by setting supracompetitive prices to carriers for access to the vendors' CRS services. Reacting to the possibility of supracompetitive pricing, the CAB imposed a non-discriminatory price restriction on the CRS vendors as part of its 1984 CRS rules package. See Part II.C, supra. The rule essentially requires that all carriers be charged a uniform but otherwise unconstrained fee for access to CRS services.

Prior to the adoption of the CRS rules, vendors were permitted to price discriminate among carriers on access fees. American and United, for example, charged relatively low fees, fifty cents or less, to carriers that generally provided the vendor with feed traffic, and $3.50 or more to smaller, direct competitors. 58/ Under the rules, vendors are prohibited from price discriminating among carriers. The result has been access fees in the $1.75/1.85 range for the major vendors, with Eastern and Delta charging closer to one dollar per segment; Eastern, however, recently announced a price increase that brings it closer to the prices charged by the major vendors. 59/

When the CRS rules became effective, each carrier-vendor followed the same general course of action. The vendors contacted all airlines offering standard contracts at standard prices. With minor exceptions, all carriers promptly joined all carrier owned CRSs at the prices offered by the vendors. Post-rule CRS pricing is summarized below in Table B:

58/ A complete description of pre-rules CRS pricing strategies is contained in Comments I, at 108-144.

59/ MARS PLUS, the only non-carrier vendor, charges on a per ticket basis, and is allowed to price discriminate. Its fee for carriers is generally $1.10 or $1.25, depending on the age of the contract. United and American pay no access fee to MARS PLUS.

TABLE B

CRS PRICING-CURRENT

	Apollo	Datas II	PARS	SABRE	SODA
Full Service (availability, booking and ticketing)	$1.85	$ .75	$1.75	$1.75	$1.25 1/
Booking and ticketing, no availability	1.40	.50	1.50	1.50	N/A
Ticketing only	1.00	no charge	1.00	1.00	N/A
Direct Access/ Direct Link 2/	1.85	N/A	1.85	1.75	1.50 1/
Total Access 3/	N/A	N/A	N/A	2.00 4/	N/A
Designated carrier display 5/	incl.	1.25	incl.	N/A	N/A
Boarding passes	incl.	incl.	.50 6/	incl.	incl.
CRT information display (per month)	$2500	$500 up to 50 pages	$1000 +.05 per access over 20,000	incl.	incl.
Marketing information (per month)	$10,000	$7500	$5000	$10,000+ 7/	N/A

1/ SODA price increases were effective December 1, 1985. The prior prices were $.75 for full service, $1.00 for direct access.

2/ Direct Access or Direct Link refers generally to direct electronic communication links between computers rather than use of slower teletype communications. Such links allow the subscriber to obtain "real time" information in a participating carrier's internal system.

3/ Total Access allows the subscriber to make a booking directly in the internal reservation system of the participating carrier.

4/ Subject to a minimum fee equal to $2.00 on 5% of total bookings.

5/ "Designated carrier" allows an agent to view a display showing only the flights of a particular carrier.

6/ The $.50 fee is charged to the carrier and credited to the subscriber up to the cost of the subscriber's boarding pass printer.

7/ $1.00 per subscriber per month.

2. It Is Unclear Whether Current Access Fees are Supracompetitive

It is possible that, even with the CRS rules, current access prices are above competitive levels. This possibility exists because two necessary, though not sufficient, conditions under which the dominant vendors can charge supracompetitive access prices -- large market shares and the absence of easy entry -- remain unchanged since November 1984. First, the market shares of the vendors have not changed appreciably since the implementation of the rules. See Part III.A, supra. Second, there is no apparent threat of CRS entry by anyone other than NIBS, and even NIBS may not be an effective constraint on the dominant vendors' ability to exercise market power, at least over the short run. See Part III.B, supra.

If market power exists, then the CRS vendors have the incentive to exercise it by charging supracompetitive access fees. There are two approaches to determining whether access fees are currently at competitive levels, given that market shares and entry conditions are essentially unchanged. The first is to analyze whether the CAB's non-discriminatory price rule prevents supracompetitive pricing; the second is to compare access fees with the costs of providing CRS services. We conclude that while the non-discriminatory price rule is unlikely to prevent a supracompetitive price from being set, we cannot say whether current CRS fees exceed the costs of providing the services.

It is important to emphasize, however, that the mere fact that fees are above short-run marginal cost does not by itself justify the regulation of fees. The excess of fees over short-run marginal cost may simply reflect an ex ante competitive return to incumbent CRSs given the risk of a CRS investment. Regulating away that excess may, at least marginally, decrease the incentives for further innovation and cost savings. Moreover, the cost of regulating prices, including the administrative costs to monitor and enforce compliance, the costs to the CRSs of compliance, and the costs to society created by the market distortions inherent in government-regulated fees, is likely to be substantial.

a. The Non-discriminatory Price Rule Does Not Appear to Prevent Supracompetitive CRS Access Fees

The effectiveness of the non-discriminatory price rule in constraining access fees depends on the existence of "countervailing market power" in the hands of large non-vendor carriers. If certain carriers have sufficiently large shares of air traffic that their inclusion in a CRS is important to the ability of the CRS to market its system to agents, then in theory these carriers might be able to negotiate with the CRS vendors for lower access fees. With a non-discriminatory price rule, small carriers that do not have countervailing power may nonetheless benefit from the negotiating power of the large carriers.

It does not appear that any major non-vendor airlines possess countervailing power in bargaining with the major CRS vendors. As the Department indicated in Comments I, carriers must be listed on all the CRS systems that have significant travel agent placements in the markets they serve. The threat of a large carrier refusing to pay a fee on a particular CRS that was even significantly above the competitive level might not be a viable bargaining strategy. The carrier would stand to lose a significant amount of ticket revenue almost immediately from not having unbiased access to a CRS that had even a moderate share of travel agents. On the other hand, the loss to the vendor of even one of the large non-vendor carriers is not likely to have a significant impact on the CRS vendor in the short term. The vendor can still provide biased information about the non-participating carrier, and any resulting loss of that CRS's desirability with agents will take time.

Several carriers tried non-participation in one or more systems for a short period of time following implementation of the rules. The most prominent example was Continental's initial non-participation in PARS. Continental reports that, as a result of the system's bias against it as a non-participant, its PARS bookings dropped 30% (up to 50% in some markets), and that it rejoined one month later. Another large non-vendor carrier stated that it rejected non-participation as a bargaining strategy because it feared it would be the only carrier to do so. Thus, if the amount of revenues foregone by non-participation is sufficiently large, it is unlikely that any carrier would be able to play one CRS off against another. In fact, virtually no carrier that participated in CRS before November 1984 opted for non-participation after the new contracts were implemented. 60/

As an alternative bargaining strategy, a carrier, or group of carriers, could threaten to displace the current CRS vendor with its own CRS system. As discussed in Part III.B, supra, it would be very difficult for a group of carriers to enter with a new CRS system. 61/

60/ As was the case prior to the CRS rules, People Express Airlines does not market through travel agents and does not participate on any CRS.

61/ Prior to the CRS rules, access prices probably did not represent the full extent of CRS market power since the vendor was able to capture additional profits through bias in display and through travel agent fees. After the rules were implemented, the industry moved from a regime of bias and unrestrained pricing to a regime of no-bias and a non-discriminatory price rule. In the absence of a price rule, but with a prohibition on bias, the vendors would still be able to increase profits by price discriminating. Given the added uniform price requirement, the vendors have set current prices that fall midway between the prior extremes of $.50 and $3.50. This does not mean countervailing power exists, however.

With a uniform price rule, the countervailing bargaining power of the large carriers might reduce the uniform price, thus benefiting small carriers as well. There is no clear relationship between the direction of change in access prices and size of carrier, however. Currently, some carriers with significant traffic are paying higher fees than before 1984,

Footnote Continued

b. It Is Unclear Whether Access Fees Exceed the Costs of Providing CRS Service

It is particularly difficult to determine whether the access fee for basic CRS service (for example, $1.75 or $1.85) exceeds the extra cost that a carrier imposes on a system when a flight is booked. First, the CRS obtains revenues from both subscribers and carriers. To compare carrier access fees to "costs," some apportionment of CRS costs must be made between subscribers and carriers. The apportionment will almost certainly be arbitrary, at least in part. 62/ Second, actually estimating the costs of CRS would involve a complex process of allocating costs between the airline's internal reservation system and its CRS operations. A third difficulty with comparing prices to costs is distinguishing between current costs and investments. Studies of costs and profitability often include as "costs" expenditures made for consumer information or research and development; yet, these

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61/ Footnote Continued

while others of similar size are paying lower fees. These events are consistent with the absence of countervailing market power in the CRS industry. Thus, there is no evidence that vendors are charging other than the profit-maximizing uniform prices.

62/ Similarly, fees to subscribers and carriers are substitutable as revenue sources for the CRS as a whole. Thus, any change in access fees is likely to induce a change in the fee to subscribers. Thus, the party that ultimately pays the access fees may be very difficult to determine.

expenditures can be expected to produce profits in the future, and are thus more properly considered investments than current costs. Moreover, some of these investments may be in activities that tend to inhibit competition and to protect the CRS's higher price levels that would not be incurred in a competitive market. 63/ These expenditures would reduce the firm's return on investment even though prices would still be above marginal cost.

Finally, investments in a competitive market will tend to be made to the point where the ex ante (*i.e.*, at the time the investment is made) expected value for the rate of return is equal to the competitive rate of return adjusted for risk. In a world of uncertainty, and with investment costs largely sunk, such competitive ex ante rates of return are consistent with a wide range of ex post returns on investment. Thus, even accurate accounting numbers on ex post prices and costs may not allow one to infer the presence or absence of market power. In other words, because investment in developing and marketing a CRS may be quite risky, a high rate of return for a CRS vendor may be earned even in a competitive market. Indeed, the possibility of such a high return may be essential if the investment is to be made in the first instance.

63/ This phenomenon is sometimes referred to by economists as "rent-seeking."

In sum, any attempt to compare access fees with costs will be subject to methodological criticism and the results will vary significantly depending on the methodology chosen. Such an effort is beyond the scope of this Report, and we are unable to conclude whether current access fees are supracompetitive based on an analysis of costs.

3. Effects of Supracompetitive CRS Access Fees

As we have just discussed, it is unclear at this time whether access fees are significantly above costs. If they are, however, there may be an adverse impact on competition in the market for air transportation. If air carriers must pay access prices that are higher than the costs the carriers impose on the CRS system, then CRS services may be underprovided. Some small carriers may be willing to pay the actual cost of using the system but may not participate at the supracompetitive access price. These carriers may be forced to use more inefficient forms of distribution, such as direct sales at ticket counters.

More importantly, to the extent that access prices are passed on to the ultimate consumer in the form of higher prices for air transportation, there may be an inefficient allocation of transportation services away from non-vendor carriers to the CRS vendor carriers. In the period from July 1985 to September 1985, vendors paid substantially less than non-vendors for CRS services. American paid .3 percent of its total airline revenue for CRS access and United paid .5 percent. 64/ The non-vendor carriers paid a higher percentage of airline revenue in access fees, usually between one and two percent. 65/ High access costs may reduce the ability of non-vendor carriers to compete in markets with the carrier vendors; however, it is difficult to determine the extent of this effect because access fees represent such a low percentage of total airline revenues. 66/ All other things being equal, non-vendor airlines will have higher costs of distribution than vendor airlines if vendors are charging supracompetitive access fees. With or without the non-discriminatory price rule, however, the vendors are incurring only the costs of generating a booking. The ability of vendors to raise their airline rivals' costs by charging such fees may limit competition in the provision of air transportation services, imposing large costs on consumers in the form of increased ticket prices.

64/ Neither calculation includes the marginal costs incurred by the vendor in booking through its own system.

65/ For example, USAir paid 1.6 percent of revenue to vendors in access fees in the July-September period, Republic 1.5 percent, and PSA 1.9 percent.

66/ The effect of moving from an unregulated price to a non-discriminatory rule does not appear to have had a major effect on the amount of CRS services demanded. Non-vendor carriers consistently renewed their contracts with the major CRSs under the new rules.

Assuming arguendo that the vendors are earning supracompetitive profits and that the possibility of entry is remote, there are possible alternatives or supplements to the current rules. The purpose of any such change should be to allow vendors to generate revenues close to the cost of providing service. Any evaluation of alternative forms of pricing rules would have to consider not only their effectiveness but also their cost to society of imposing such rules.

E. The Costs of the CRS Rules Are Unknown

In the preceding discussion of the probable procompetitive benefits of the CRS rules, we have not attempted to specify the rules' competitive costs. Such costs may exist and be substantial, and could affect the net competitive benefit provided by the rules. In particular, experience with rate regulation and divestiture in other contexts suggests that the cost of direct government regulation to restrict the exercise of market power over fees is likely to be substantial. 67/ The

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67/ As an alternative to regulation of access fees, the Department of Transportation could allow carriers to negotiate jointly with CRSs over access fees. There would be several problems with such a solution. First, it might require an antitrust immunity that might be difficult to administer and result in unintended anticompetitive "spillover" effects in other contexts (e.g., fixing of ticket prices to travellers). Second, such joint bargaining could give carriers too much power vis-a-vis CRSs and lead to an inefficient reduction in

Footnote Continued

Department cannot say at this time that the benefits of regulatory efforts directly to constrain CRS power over access fees would outweigh the costs of such regulations. For the purposes of completeness, however, in the next section of this Report we examine various relief options that might be considered to constrain supracompetitive access fees. A final section examines the likely costs and benefits of divestiture as a remedy.

IV. Remedy Options

A. New Entry -- The Preferred Remedy

The Department's consistent position on the CRS industry has been that, to the extent that government intervention into the CRS market is deemed necessary, strong preference should be given to remedies that create conditions that enable competitive market forces to constrain the exercise of market power by CRS vendors. This rationale was the basis of our advocacy in 1983 of entry-enhancing rules; we hoped that increased competition in the CRS industry would eventually remove the need for any government regulation. Our position

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67/ Footnote Continued

the output of CRS service. (This effect could be similar to the effect from a zero-price rule, discussed infra.) Finally, joint bargaining by such a diverse group as all air carriers would be very difficult and costly to coordinate.

remains the same, particularly since there is a potential entrant on the horizon, NIBS, and its contemplated entry by acquisition offers some possibility for success. 68/

One area where relief may be appropriate some time in the future is an additional rule requiring airline-owned CRS vendors to make their flight information available to other CRSs, a rule originally proposed by the Department in 1983. This issue has not yet arisen because there has been no attempt at de novo entry in the past year. Moreover, NIBS is considering entry by purchase of an existing system, all of which currently have the participation of United and American. Should either United or American propose to withdraw from a NIBS-owned CRS, however, then the Department of Transportation should consider action in order to ensure that NIBS, or any other new entrant, has access to the flight information of those carriers. (Similarly, of course, concern might arise if the NIBS carriers fail to make their flight information available to other CRSs.)

68/ As detailed in Part III.B, supra, however, entry by NIBS will not be easy and success will become increasingly less likely if significant progress is not made soon. An agreement between NIBS and an existing CRS has not been reached, and industry trends suggest that the window of opportunity for enrolling unautomated agents in a CRS may be disappearing. As more automated agents sign contracts containing the new liquidated damages clauses, their conversion will become increasingly more costly.

Although the Department does not currently support any change in the CRS rules, it might also be appropriate at some time in the future to consider further the use of liquidated damages by CRS vendors. As described in Part III.B, supra, long-term contracts and liquidated damages clauses make it costly for travel agents that are now automated to switch to other CRSs. 69/ Such a rule should be approached cautiously, however, because there may be good reasons for the new liquidated damage clauses, such as the need for vendors to compensate themselves for the shorter (five-year) contract periods required by the rules. A prohibition on liquidated damages clauses might also handicap potential entrants more than it assists them.

Even if NIBS's effort to acquire a CRS is successful and/or new rules to encourage new entry are implemented, incumbent CRSs may retain market power over access fees. As we concluded in 1983, Apollo and SABRE are not substitutes for one another from the carriers' point of view. 70/ The entry of NIBS would

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69/ The problem might simply be the length of the contract. Limiting the contract length to less than five years might be considered in order to make more agents available for switching at any given time, and thus to facilitate new entry. On the other hand, such a limitation on the duration of an exclusive contract may have adverse effects.

70/ While carriers generally need to be listed on all systems, at least one carrier, People Express, has successfully pursued a strategy that has included refusing to participate in CRSs. The option of by-passing CRSs to some extent may temper carriers who own CRSs from raising access fees.

not necessarily change that fact (although carriers might view access to NIBS as necessary as well) because continued access to Apollo and SABRE may remain essential to the ability of carriers to compete in a number of geographic markets. 71/ The likely magnitude and effect of this continued power over access fees is unclear and, after the entry of NIBS or a similar joint-owned CRS, that market power could be negligible.

B. Alternative Long-Term Relief Options

1. Introduction

The Department does not recommend a change in pricing regulation policy at this time. Nonetheless, in this section we evaluate two of the possible alternatives: direct price regulation and the "zero-price" option. We also examine divestiture as a remedy.

71/ The constraining effect of NIBS on access fees may be too indirect to be effective, and any constraining effect may not occur in the short run. If other CRSs maintain large agent bases, they will to some extent be able to set supracompetitive prices. By obtaining an equity interest in NIBS, the various carriers will pay only the true cost of providing the service since they share in any profits of the system. Then a carrier facing monopoly access fees on another CRS may be able to avoid participation in that CRS and to rely instead on NIBS and other CRSs. Access fees will only be constrained if NIBS becomes a viable substitute for SABRE or Apollo. To be an effective substitute and thus prevent supracompetitive CRS access fee pricing, NIBS must eventually become a dominant CRS itself. Such a result would require that NIBS improve its agent base in the regions that are important to its various members. This will take time.

2. Price Regulation

If supracompetitive pricing of access fees exists, one possible solution to the problem is full-scale price regulation with access charges set at a level such that the CRS vendors earn only the competitive rate of return on investment. The complexities of accounting and cost allocation, however, make it virtually impossible to establish a "competitive" price by regulation. Moreover, price regulation is beset with the problems of rate-base padding and reduced incentives to minimize costs that hamper the goal of achieving an efficient level of output. Price regulation would also hinder the CRS vendors' ability to react flexibly to changes in the market, and periodic rate hearings would inevitably be required to evaluate vendor requests for changes in prices. For these reasons, the Department opposed full-scale rate regulation of access fees in 1983. The Department continues to believe that any form of full-scale price regulation is very costly and should be avoided.

3. Zero-Price

The Department has previously commented on the possibility of a "zero-price" rule. 72/ Under a zero-price option carriers

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72/ See Comments II, at 33-37.

would not be charged for basic CRS access. Instead, travel agents would be charged for bookings. By changing CRS pricing in this manner, the zero-price option would force CRS vendors to compete for travel agent locations on the basis of price. Competition for new travel agent locations and for agent contract renewals might move prices closer to costs. Currently, there is limited competition among vendors for carrier participation in CRS. As discussed above, the carriers must be on all the CRS systems. However, agents only require one system to serve their customers. 73/ Under a zero-price rule, vendors would compete to serve that location, with the agent choosing the vendor that offers the best combination of quality and price. Presumably, travel agents would recoup some or all of their CRS fees in the form of enhanced commissions from the carriers or directly from their passenger clients.

A zero-price rule does not eliminate the need for collateral rules, however. As is currently necessary with the non-discriminatory price rule, a zero-price rule also would have to prevent vendors from charging travel agents for bookings on a carrier specific basis. Otherwise, vendors could target certain carriers that were their direct competitors and

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73/ Our 1983 investigation showed that only about four percent of all automated agencies had more than one CRS. See Comments I at 40. Thus, rival CRSs are far better substitutes from an agent's perspective than from a carrier's perspective.

charge travel agents higher fees for booking these carriers. The result would be welfare losses similar to those that existed prior to November 1984.

Moreover, to implement the zero-price rule, a provision such as 14 C.F.R. §255.3 — which defines "service enhancement" — would continue to be necessary to define the difference between "basic service," for which carriers would not be charged, and "enhancements", for which they would be charged. 74/ A zero-price rule would also require retention of an equality-of-treatment rule (such as 14 C.F.R. §255.5(d)) regulating the timing and number of schedule or fare changes. Even a non-discriminatory data loading rule (such as §255.5(d)) could affect carriers that have disparate marketing strategies in a discriminatory manner. For example, a discount carrier may require a greater number of schedule changes than a commuter airline.

Regulatory supervision and enforcement produces costs that must be weighed in assessing relief options. A zero-price rule may require more regulatory supervision and enforcement than the current non-discrimination rule. A zero-price rule

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74/ Wherever "basic services" under any price rule are to include services that do not give the vendors market power, such as boarding passes, vendors may not be able to appropriate from carriers the full benefits from providing these services at the regulated price. Thus, the ability to charge agents for such services is critical to preserve the incentive to invest in new enhancements and improved carriers' technology.

frustrates a vendor's ability to extract supracompetitive access fees through its pricing of "basic service" to other carriers. To the extent that a CRS vendor cannot charge supracompetitive fees to carriers through higher charges to agents, the vendor may have an incentive to reduce the zero-priced service, and define more CRS services as "enhancements" — for which additional charges can be assessed. The potentially continuing problem for the regulatory agency is to be certain that "basic service" is always defined to include only those services that give vendors market power over carriers. 75/ Those services currently appear to be schedules, fares, booking and ticketing. This list could quickly change, however, in an industry that is experiencing significant technological evolution. Thus regulatory supression of direct access charges may result in higher regulatory costs, as carrier vendors redefine the regulated product.

75/ A similar regulatory enforcement problem currently exists under the non-discriminatory price rule, but to a lesser degree. A vendor has an incentive to have its CRS services to carriers escape the "basic service" category to which the uniform price rule applies. This incentive is less under the non-discriminatory price than it would be under a zero-price rule because under the current rule, the vendors can impose some supracompetitive (albeit uniform) fees on other airlines for basic services. Under either basic price rule, the advantages of escaping the "basic service" category are limited if enhancements made available to any other airline are also subject to non-discrimination rules.

Finally, there are possible inefficiencies associated with the zero-price option that are similar to those associated with the current non-discriminatory rule. For example, a small carrier with a very limited route configuration and schedule could demand full CRS service at a zero-price, even though neither the carrier, travel agents, nor passengers would be willing to pay for the cost of providing CRS service with respect to the small carrier. It may be more efficient for such a carrier to use alternative forms of ticketing rather than a CRS.

The Department recognized in Comments II that the zero-price option had several desirable characteristics that might recommend it over a non-discriminatory price rule, including: (1) the elimination of the possibility of bias being reintroduced against non-participating carriers if a high non-discriminatory price is set; (2) the elimination of the ability of vendors to extract a supracompetitive non-discriminatory carrier access fee directly from the carriers; and (3) the reduction in a vendor's downstream advantage of not having to pay its own high access fees to the extent the rule does not lead to the imposition of equivalent charges on travel agents.

To date, however, experience under the non-discriminatory price rule has not shown problem (1) above to be a serious concern, and we have not yet been able to determine clearly whether current access fees are (or would be, after the entry of NIBS) supracompetitive. See Part III.D, supra. Yet, the current non-discriminatory rule has not been in effect long enough to assess its full impact or to recommend that it be replaced with the zero-price rule. Thus, despite our previous recommendation that no pricing rule be adopted, we believe that efficient rulemaking requires a longer evaluation period before withdrawal of the rule or new changes are considered.

4. Divestiture

This Report's analysis of possible remedies has concentrated on the efficiency aspects of improved competition in the CRS industry. There also may be competitive benefits from breaking the link between airline ownership and CRS ownership through divestiture. Any such benefits, however, must be very carefully weighed against the possible efficiency losses and hardware duplication that would be imposed by such a separation of computer facilities.

a. Benefits of Divestiture

Separating CRS ownership from the airline parent may bring access prices down to competitive levels by facilitating entry and increasing CRS competition. While the anti-bias rules have eliminated the ability of carrier-vendors to earn incremental revenues, the carrier-vendors still retain an entry advantage over non-vendor carriers in markets where the vendors have a major airline presence. See Part III.C, supra. Divestiture would eliminate this advantage. 76/

Divestiture may also have benefits in air transportation markets. Currently, carrier-vendors incur only the marginal cost of booking an airline reservation, while non-vendor carriers pay an access fee that may be priced above the vendors' costs. If the access fee is supracompetitive, it will create distortions in airline markets.

The exercise of market power over access fees will not necessarily be eliminated by divestiture, however. Divestiture will not eliminate the need for carriers to have access to all CRS systems that retain a significant share of travel agents in the markets they serve. Thus, CRS market power will continue to exist as to carriers because the CRS systems will not necessarily become substitutable after divestiture. 77/ To the extent that CRS systems retain market power, the benefits of divestiture will be of a limited nature.

76/ A dominant CRS system also allows a carrier-vendor to increase its airline market share. Divestiture may reduce this tendency as well.

77/ There may be some increased CRS substitutability, however. In cities dominated by one air carrier, the carrier's CRS system will no longer hold an advantage over other systems after divestiture. Divestiture reduces the cost to a travel agent of switching to alternative systems by eliminating the advantage of purchasing the dominant carrier's CRS. It may then be easier for vendors to compete for agent locations.

b. Costs of Divestiture

The cost of separating a CRS from its airline parent depends on the form that divestiture takes. Although separation of facilities may be technologically feasible, the costs of doing so could be quite high. This is because typically an airline CRS system fully integrates the airline's internal reservation system ("IRS") and the CRS used by travel agents. 78/ The basic core of a CRS consists of one or more mainframe computers containing high speed central processing units ("processors"). In the two larger systems, SABRE and Apollo, multiple processors are run simultaneously through a hardware/software linkage process. These processors manage the "real-time" CRS system by controlling the processing of messages that are received from travel agents and internal reservation personnel, at a rate of over 1000 messages per second.

The major systems also have processors for development and testing of new software. Both the passenger reservation processors and the testing system share backup computers. Backup capacity is important to handle peak loads in demand and for breakdown of online computers. The larger systems benefit

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78/ To a large extent, however, the systems are dominated by CRS usage. American and United estimate that at peak usage, approximately 75-80 percent of capacity is CRS usage.

from economies in this area because the necessary backup capacity does not increase proportionately with the number of online processors. Thus, a CRS or IRS that runs on one processor may require the same amount of backup as a system that runs on four processors.

The main processors of a CRS are linked to a massive data storage facility. The storage facilities, or disk units, contain the main CRS database. 79/ Database software allows agents to call up a passenger's flight reservations, develop a schedule screen, analyze fares, construct flight connections, as well as perform other service enhancements.

Travel agents, city ticket offices, internal reservations offices, and airports are all linked to the passenger reservation system via a high speed communications network. Both United and American have networks whose configurations are determined by the joint demands of CRS users and internal users. Thus, any one line may be connected both to a city ticket office using the IRS and a travel agent using a CRS terminal. SABRE and Apollo also contain direct links to other airlines for the purposes of direct bookings. Connections to other airlines and small volume travel agents may be through other communications networks that are not direct links.

79/ The database includes schedules, fares, and passenger name records ("PNR") containing a passenger's name, accouting data, flight itinerary, and other non-airline reservations.

It is thus clear that the relationship between CRS-specific transaction processing and airline-specific transaction processing is one of full integration. Processing capability is fully shared between the two functions. The vendor's fares and schedules are loaded into the database and are separate only in the sense that software can be used to generate airline schedules for internal reservations purposes or for maintaining a flight operating system.

Three forms of possible divestiture are presented below. These represent only basic scenarios for separating hardware, software, databases, and communications networks. In fact, there is a continuum of possibilities involving the degree of separation of each of the four major components of a CRS:

1) The CRS and the related airline IRS would share the same physical location. Some processors would be shared but the databases would be separated. The systems would also share a common communications network.

2) The CRS and the related airline IRS would be separated into two nearby sites. The computer facilities, including processors and database, would be separate, but the two systems would continue to share a common communications network.

3) The CRS and the related airline IRS would be completely separated into remote sites. All systems, processor, database storage facilities and the communications network would be duplicated.

Assuming no coordination problems, the costs of divestiture will be minimized to the extent that facilities are shared. It is not at all clear, however, that sharing of some aspects of the system is technologically feasible. Full separation may be necessary in some cases. Costs of divestiture would be incurred in four general areas: hardware, software, database and telecommunications networks.

Hardware - Because almost the entire capacity of a CRS facility is used for non-internal purposes, a purchaser of the system would probably want to purchase most, if not all, the processors that are currently in use. Thus, the seller of the system would have to purchase new processors to run its stand-alone internal reservation system. The number of processors required would depend on whether the site for the new system was shared with, or separated from, the CRS system. A shared site would allow the two entities to share backup, thus reducing the amount of costly duplication of new computers. Processors necessary to run a reservation system presently cost over $5 million each. At least one or two such processors would be needed to run a real time IRS, as well as to provide capacity in order to maintain backup and development capability. 80/

80/ Both processors and disk units appear to be readily available for purchase; thus, this is not a constraint in evaluating divestiture.

The actual price of hardware only represents a lower bound on the cost. In many cases the processors and peripheral hardware must be modified by in-house technicians to specifications particular to a CRS system. Also, in a remote site divestiture the actual facility housing the system would have to be duplicated. 81/ It appears, then, that the major cost of hardware divestiture is the duplication of facilities.

Software - Some divestiture costs would be incurred in duplicating and modifying computer software. Those portions of the software programs used in the system that are CRS-specific would be deleted in the IRS system, and those portions that are airline-specific would be deleted from the CRS programs. It does not appear that the software is so substantially integrated that deactivating portions of it would require new and extensive programming. Existing software can be run on a small one- or two-processor system as efficiently as on five or six processors. The large CRS vendors connect their processors with complex linkage software, but these programs can be downscaled to run fewer processors without considerable modification. The costs of separating software would be unaffected by either a same site or remote site divestiture.

81/ Presumably, backup power sources and computer security would have to be duplicated as well.

Database - The costs of restructuring a CRS database lie in the possibility of lost data and the disruption of service to customers. In a divestiture, the CRS database would first have to be segregated into its CRS parts and IRS parts. All the passenger name records in the database would have to be sorted into those records that had their source in a travel agent and those that had their source in an internal reservation office. The actual sorting could be accomplished while the CRS system was running, and would probably involve very little downtime.

The largest cost in this area would result from the actual transfer of the data to the new systems. If divestiture were accomplished with a same site structure, transfer of the database may be possible in a real time mode; that is, without bringing the computer system to a halt. 82/ Divestiture would involve segmentation of the database, which may be a more costly process than direct data transfer.

Transfer of data to a remote site would be more costly. The segmented data from the original CRS system, after sorting, would have to be downloaded onto tape and physically transferred. Between three and five percent of the data would probably be lost in the transfer because the real time data base is constantly changing, even as the downloading occurs.

82/ American, when it moves to a nearby site, plans to transfer its data without downtime.

Moreover, downloading onto tape, uploading the tape to the new system, and bringing the new database up to date with recovery of the lost data could take six weeks. Thus, the possibility of service disruption for the airline is very great.

There have been instances of tape transfers between small reservation systems. The data, however, were already somewhat segmented on the disks. 83/ In the case of a large system, the costs of possible downtime and service disruption would have to be calculated in considering a remote site divestiture.

Telecommunications network - Currently, internal reservations locations and travel agents share an integrated network that communicates with the CRS. Divestiture may result in a costly duplication of the network. Both SABRE and Apollo's current (and planned) telecommunications networks are designed to accomodate joint CRS and internal use, and it is not possible to pinpoint separate lines for the CRS and the IRS. The lines are leased from the major telephone companies and are dedicated solely to the vendor. Maintenance and diagnosis of the communications systems is accomplished in-house. A purely internal system does not need such a complex network. Most likely the new CRS owner would purchase the existing network, and the airline would build a new (or lease an existing) smaller network for its own internal use.

83/ Piedmont established its own IRS after separating from a shared system run by Eastern.

Divestiture to a same-site facility would leave open the possiblity of sharing the existing communications network. That is, through a joint venture, the new CRS owner and the airline would own the network with divestiture occuring where the network enters the computer facility. Signals would then be routed to either the CRS or the IRS. The joint venture agreement would have to develop procedures for upgrading and maintaining the network, as well as for allocating costs between the divested entities. 84/

For a given network, the average cost of operating that network probably declines as the number of users increases. Thus, communications networks take on some of the characteristics of a natural monopoly. Economies of integration will be lost if a second network has to be built to accomodate a purely internal reservation system.

Miscellaneous costs - The costs of divestiture would be compounded by the need to separate personnel into two staffs. Currently, United and American have their personnel organized by function rather than by CRS and IRS. Coordinating the management structure in a shared site divestiture would be very difficult. The need to retrain or hire scarce programmers would also increase the costs of divestiture.

84/ Currently, Continental Airlines shares its communications network with 27 airlines.

There are also long run costs to divestiture that should be considered. The incentives to keep the CRS on the frontier of technology are in large part created by the desire for the airline parent to benefit from an increase in its market share in the air transport market as a result of upgrading the CRS. A non-airline vendor may not have the same incentive to upgrade the system, resulting in a less reliable system of distributing airline transportation than would develop in a carrier owned CRS market. Moreover, there may be economies of scope between operating an airline and operating a CRS that would be lost by requiring divestiture. Also, it is very likely that United and American may possess other skills and capabilities (beyond the dominance of their air service in certain regions) that contribute to the success of their systems; again, it will be virtually impossible to transfer those advantages with the divestiture. Indeed, the fact that carrier-owned CRSs have dominated this market may be in part due to these advantages. 85/ If so, there would be nontrivial economic costs to requiring divestiture to non-carriers. Finally, it would be necessary to retain some regulation of the divested CRSs, and to incur the resultant costs of that effort.

85/ MARS PLUS, the only non-carrier CRS, has consistently failed to achieve an agent base equivalent to even the smallest of the existing carrier-owned CRSs.

c. Implementing Divestiture

The terms and conditions of a divestiture also would be difficult to resolve. First, the buy-out price of a CRS would have to be determined. Without any known market transactions for similar systems, there is no benchmark for determining a sale price. An extremely complex and inherently speculative analysis of the investment made in hardware and software development would be necessary to compensate the current owners for the risks taken in developing the systems.

Second, after divestiture independent airlines will be able to negotiate with the new CRSs for the purchase of bias. Prior to November 1984, the airline-vendors earned substantital incremental revenues from bias of display against rival carriers. Travel agents may also want systems with bias, especially ones that are biased in favor of the carriers that are dominant in their geographic location. Unless DOT limited the ability of an independent CRS to sell bias, the situation would be indistinguishable from the pre-rules era.

d. Conclusion

Although we cannot quantify the effects, it is clear that the costs of the various divestiture alternatives are very high, and the possiblity of service disruption is great. In view of the fact the evidence on supracompetitive pricing is inconclusive and that entry by NIBS soon may alter the competitive situation in the CRS industry, the Department does not recommend divestiture at this time.

V. Conclusion

In sum, the Department of Justice concludes that, notwithstanding the imposition of the CRS rules in November 1984, the dominant CRS vendors apparently continue to possess market power. This conclusion is based on the lack of significant change in the national market shares of the various CRS vendors, and on the fact that entry into the CRS industry remains difficult. We conclude that de novo entry in the foreseeable future is very unlikely, and that the NIBS joint venture's entry by acquisition is far from assured. The CRS rules have only been in effect a year, however, and, thus, it is really too early to determine the ultimate effect of the rules on the CRS market.

The exercise of CRS market power could harm competition in airline transportation markets. It is unclear, however, that any such harm is in fact occurring. We conclude that, under the CRS rules, market power is not being exercised through display bias to any significant degree, and it is uncertain whether CRS vendors are currently charging supracompetitive access prices to rival airlines.

The CAB rules have been in effect only a short time, the evidence on CRS pricing to other airlines is inconclusive, and

CRS competition may increase if the NIBS joint venture is successful. Accordingly the Department concludes that the implementation of long-term remedies is unwarranted at this time, and does not support any changes in the current CRS rules.

APPENDIX

CALCULATION OF MARKET SHARES

Market shares from the 1983 CRS investigation period are taken directly from the Department's Comments I filing. The shares in Comments I were calculated in two ways: (1) on the basis of number of locations for each CRS; and (2) on the weighted basis of the amount of domestic revenue booked through a CRS by each agency where a particular CRS was located. 1/ At that time, there were a total of 21,368 travel agent locations, of which 13,822 (65% representing 88% of all domestic revenues) were automated. The nationwide market shares of automated agencies as calculated in 1983, as well as a calculation of the average size of agency for each CRS, is contained in Table 1.

TABLE 1

NATIONAL CRS MARKET SHARES AND AVERAGE SIZE OF AUTOMATED AGENCIES (1983)

CRS	Locations	PCT	Domestic Revenues	PCT	Average Size (000)
APOLLO	3,865	28%	$ 4,040,856,002	31%	$1,046
DATAS II	688	5%	259,774,372	2%	378
MARS PLUS	344	2%	281,932,911	2%	820
PARS	2,159	16%	1,561,123,415	12%	723
SABRE	5,692	41%	6,376,288,718	49%	1,120
SODA	1,074	8%	605,345,545	5%	564
TOTALS	13,822	100%	$13,125,320,963	100%	

1/ Revenue calculations were based on the twelve months between July 1982 and June 1983.

As can be seen in Table 1, Apollo and SABRE dominated the market in 1983, particularly when measured by size of agency.

For purposes of this Report, the Department calculated two additional sets of market shares. The first set is taken from approximately November 1984, the time at which the CRS rules were imposed. Shares based on the number of locations for each CRS were calculated directly from information voluntarily supplied by the vendors for this Report. Because each vendor supplied only its total number of locations, however, double counting of some locations would occur where additional systems were installed only as secondary systems. As we learned in 1983, agents with multiple systems tend to use only one for storing passenger name records (PNRs) and generating sales. The secondary systems are used for checking last seat availability or issuing boarding passes. In order to adjust for this double counting, we reduced each vendor's total number of November 1984 locations based upon a factor taken from the 1982-1983 data. The factor represents the percentage of each vendor's locations that were used as primary systems at that time. As shown below in Table 2, adjusting for double counting in this manner did not perceptibly affect market shares.

TABLE 2

NATIONAL CRS MARKET SHARES OF AGENCY LOCATIONS (NOVEMBER 1984)

CRS	Total Locations	PCT	Percent Primary (1983)	Primary Locations	PCT
APOLLO	6,167	25%	95.0%	5,859	26%
DATAS II 1/	2,500	10%	89.5%	2,238	10%
MARS PLUS	350	1%	96.4%	337	1%
PARS 2/	3,489	14%	92.9%	3,241	14%
SABRE 3/	8,163	34%	95.5%	7,796	34%
SODA	3,632	15%	94.2%	3,421	15%
TOTALS	24,301	99%	94.5%	22,892	100%

1/ Datas II locations are approximate
2/ September 30, 1984
3/ December 31, 1984

A second measure of market shares at about the time the CRS rules were implemented is available, and is fairly consistent with the information in Table 2. The shares shown in Table 3 are based on an agent survey conducted by the NIBS Interest Group as part of a feasibility study. NIBS calculated market shares as of December 1984 from the questionnaire responses of 3263 agencies, 91% of which were automated. The NIBS data suggest, if anything, a more competitive market structure than the data based on vendor responses reveal. One explanation is that the NIBS data measures agencies rather than locations, and thus probably understates the strength of Apollo and SABRE, which tend to do relatively better with larger, multi-location agencies.

TABLE 3

NATIONAL CRS MARKET SHARES OF AGENCIES
(NIBS SURVEY, DECEMBER 1984)

CRS	Agencies	PCT
APOLLO	674	23%
DATAS II	398	13%
MARS PLUS	91	3%
PARS	517	17%
SABRE	701	24%
SODA	582	20%
TOTALS	2963	100%

The Department also calculated weighted market shares for November 1984 based on the revenue booked by agency subscribers of each CRS. Two methods were available to do this. 2/ Our first calculation of revenue-weighted shares was done by assuming that the average size of each CRS' agency in 1983 remained the same in November 1984. See Table 1. Thus, the average size of agency as calculated from the 1983 data was multiplied by the number of November 1984 locations (as reduced in Table 2 to account for secondary systems) to give a projection of annual revenues. Market shares were then calculated based on these projected revenues. Although these

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2/ The Department requested revenue information from the various vendors, but only American, United and TWA were able to provide useful data. Although weighted averages based completely on vendor responses could not be calculated, the three responses were used to verify that our calculations were reasonably accurate.

projected revenue figures do not reflect changes in fares or traffic, if the relative average sizes of the various vendors' agencies remained stable, then the weighted market shares shown below in the fourth column of Table 4 are reliable.

TABLE 4

NATIONAL SHARES BY AGENCY REVENUE
(NOVEMBER 1984)

CRS	Primary Locations	1983 Avg. Size (DOJ) (000)	Total Projected Annual Domestic Revenue (000,000)	PCT	1984 Avg. Size (NIBS) (000)	Projected 1984 Total Revenue (000,000)	PCT
APOLLO	5,859	$1,046	$6,128.5	30%	$1,475	$ 8,642.0	29%
DATAS II	2,238	378	846.0	4%	713	1,595.7	5%
MARS PLUS	337	820	276.3	1%	1,232	415.2	1%
PARS	3,241	723	2,343.2	12%	989	3,205.3	11%
SABRE	7,796	1,120	8,731.5	43%	1,710	13,331.2	45%
SODA	3,421	564	1,929.4	10%	745	2,548.6	9%
TOTALS	22,892		20,254.9	100%	1,386	29,738.0	100%

We also had more recent calculations of average agency size based on surveys NIBS had conducted using 1984 data. The 1984 NIBS data had two major differences with the Department's 1983 data. First, average agency size, measured in revenue, was nearly twice as high in the NIBS data. NIBS, however, measured domestic plus foreign passenger revenue, whereas the Department's 1983 data included only domestic revenue. This, in addition to increased traffic and fares, undoubtedly contributed to the difference. Adjusting for absolute size, however, the relative average sizes of agencies subscribing to the various CRSs were very similar in both sets of data. 3/

The other difference was that the NIBS data showed unautomated agents to be vastly larger, on average, than did the Department's 1983 data. Use of the NIBS data, however, did not substantially alter the relative average sizes of agencies subscribing to the various CRSs. Table 4 above and Table 5 below show that the revenue-weighted market shares based on the Department's 1983 data are similar to those based on the NIBS 1984 data.

Finally, current market shares were calculated. The shares were calculated based upon the most recent information supplied by the vendors, again reduced to eliminate double counting as described for Table 2, above. The shares are shown below in Table 5:

TABLE 5

NATIONAL CRS MARKET SHARES OF AGENCY LOCATIONS (CURRENT)

CRS	Total Locations	PCT	Percent Primary (1983)	Primary Locations	PCT
APOLLO	6,593	24%	95.0%	6,263	24%
DATAS II	3,000	11%	89.5%	2,685	10%
MARS PLUS	246	1%	96.4%	237	1%
PARS	3,680	13%	92.9%	3,419	13%
SABRE	9,326	34%	95.5%	8,906	35%
SODA	4,568	17%	94.2%	4,303	17%
TOTALS	27,413	100%		25,813	100%

3/ Minor differences existed as to the average size of PARS and SODA subscribers, each now shown by the 1984 NIBS data to be relatively smaller.

In addition, current weighted shares based on revenue booked were calculated using the same methodology as described above for Table 4. Those shares are contained below in Table 6:

TABLE 6

NATIONAL CRS MARKET SHARES BY AGENCY REVENUE (CURRENT)

CRS	Primary Locations	1983 Avg. Size (DOJ) (000)	Projected Annual Total Domestic Revenue (000,000)	PCT	1984 Avg. Size (NIBS) (000)	Projected 1984 Total Revenue (000,000)	PCT
APOLLO	6,263	$1,046	$6,551.1	29%	$1,475	$9,237.9	28%
DATAS II	2,685	378	1,014.9	4%	713	1,914.4	6%
MARS PLUS	237	820	194.3	1%	1,232	292.0	1%
PARS	3,419	723	2,471.9	11%	989	3,381.4	10%
SABRE	8,906	1,120	9,974.7	44%	1,710	15,229.3	46%
SODA	4,303	564	2,426.9	11%	745	3,205.7	10%
TOTALS	25,813	950	$22,633.8	100%	1,386	33,260.7	101%

United States General Accounting Office

GAO

Report to Congressional Requesters

May 1986

AIRLINE COMPETITION

Impact of Computerized Reservation Systems

GAO/RCED-86-74

GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division
B-223042

May 9, 1986

The Honorable Nancy L. Kassebaum
Chairman, Subcommittee on Aviation
Committee on Commerce, Science,
and Transportation
United States Senate

The Honorable Norman Y. Mineta, Chairman
The Honorable John P. Hammerschmidt,
Ranking Minority Member
Subcommittee on Aviation
Committee on Public Works and
Transportation
House of Representatives

In your letter of July 30, 1985, and in subsequent meetings with our staff, you asked that we review certain aspects of the effects of airline-owned computerized reservations systems (CRSs) on competition in the airline industry. Specifically, we focused our review on

- conflicting studies on the question of the profitability of the CRSs owned by United and American Airlines and
- the Department of Justice's December 1985 report on the structure and performance of the market for computerized reservation systems.

Our objective was to determine whether these studies could be used to clarify the continuing debate about the profitability and competitiveness of the current CRS market.

In summary, we found that neither the profitability studies nor the Justice market study resolves the key issues concerning the market power of airline-owned CRSs. We found that the CRSs are more profitable than estimated by United and American, primarily because their analyses did not include revenues from additional ticket sales due to their ownership of CRSs (called incremental revenues). However, a study sponsored by non-CRS-owning airlines probably overstates profits, and we believe the available data are insufficient for us to develop our own profitability estimates. We agree with much of the Justice report's analysis and conclusions. Justice expresses concern about the market power of airline-owned CRSs and the potential for anticompetitive practices. However, Justice does not propose any specific actions to promote competition. We believe action is needed by the Department of Transportation (DOT), which is now charged with preserving airline competition, to resolve lingering issues about (1) the extent of incremental revenues being obtained by airlines that own CRSs and (2) whether CRS booking fees are higher than appropriate because of the market power of existing CRSs.

Background

Deregulation of the airline industry, which culminated in the 1984 sunset of the Civil Aeronautics Board (CAB), has led to more aggressive competition in an industry no longer constrained by the need to get approval from the CAB for new rates and routes. Responsibility for protecting competition in the newly deregulated industry was transferred to DOT in January 1985. DOT inherited the responsibility to ensure that aggressive competition did not lead to anticompetitive behavior, unreasonable industry concentration, or excessive market domination.

The more intense competition under deregulation has resulted in a dramatic increase in the number of fares in effect, which in turn has contributed to a growing reliance on travel agents as marketers of airline tickets. The travel agent industry has grown from about 12,000 agent locations in 1976 to 27,000 in 1985. Both the proliferation of fares and the growth of travel agents have contributed to the growing importance of computerized reservation systems.

In 1983 (the most recent year for which data are available) about 60 percent of airline flights were booked by travel agents, and nearly 90 percent of all agency-booked airline revenues came from automated agencies. United and American Airlines were the first to successfully market CRSs that could be used by travel agents to book flights directly, and their systems together accounted for 70 percent of the domestic revenues booked by travel agents nationwide. The four other CRSs are owned by Eastern Airlines, Delta Airlines, TWA, and McDonnell-Douglas. In many metropolitan markets, especially smaller ones, one CRS alone, usually United's Apollo or American's Sabre, accounts for over 70 percent of the revenues booked.

Most airlines rely heavily on travel agents for ticket sales and thus are dependent upon computerized reservations systems. A group of 11 airlines has alleged that United and American have unfairly taken advantage of their positions as the two largest CRS-owning airlines. According to the complaining carriers, ownership of a CRS has been highly profitable for United and American, especially when all sources of income derived from the CRS are taken into account. They charge that excessive profits from CRS operations are strong evidence that the CRS owners are exercising monopoly power. On the other hand, United and American argue that the returns on their investments in Apollo and Sabre are in line with earnings in other industries from investments entailing similar risks. Also, United and American believe that their profits are a justifiable return on their innovation and entrepreneurship.

The implications of monopolistic abuses in the market for CRS services can be serious for competition in air travel markets. Before the CAB issued rules governing airline-owned CRSs in 1984, the CRSs provided screen displays that could be strongly biased in favor of their airline owners. The biased screens placed the CRS owners' flights first in the listings of available departures, and thereby caused travel agents to book more passengers on the flights of CRS-owning airlines at the expense of other carriers.

In addition to biased screens, the disadvantaged airlines pointed to a number of other unfair practices (such as charging unreasonably high rates to competitors for participation in CRSs, and using information gained from a CRS for unfair competitive advantage) that caused them to lose customers to the CRS-owning carriers. The allegations were serious enough to lead to investigations by CAB and the Department of Justice that subsequently led CAB to promulgate rules governing the conduct of CRS owners that went into effect in November 1984. These rules require, among other things, that display screens be unbiased; that CRS owners share, at a reasonable cost, any data generated by the system; and that booking fees, the amounts paid by other airlines for having their flights booked on a CRS, be nondiscriminatory.

The rules requiring the elimination of screen bias and other unfair practices reduced incremental revenues for the CRS-owning airlines. To comply with the rules, United and American each established uniform booking fees for all users at levels which meant overall increases, by as much as 264 percent and 500 percent for Apollo and Sabre, respectively, although some airlines had fees reduced. The substantial increase in fees caused several of the CRS-using airlines to charge that United and American were continuing to abuse their market power. Moreover, the CRS-using airlines alleged that unfair practices persist despite the CAB rules. Among other charges, the airlines claimed continued screen bias and unequal access to marketing data. As a result, United and American were alleged to be continuing to earn excessive profits from their ownership of CRSs.

In March 1985 the Subcommittee on Aviation, Senate Committee on Commerce, Science, and Transportation, held hearings on these allegations to determine if remedies are needed. United and American presented estimates of the profitability of their CRSs and argued that they earned profits consistent with those earned by investments elsewhere entailing similar risks. However, Simat, Hellison and Eichner (SH&E), a consulting firm hired by 11 airlines who compete with United and American, issued a report shortly thereafter asserting that United and American had seriously understated CRS profitability by omitting incremental revenues, the added ticket sales by travel agents using their systems, and by overstating their costs. A discussion of possible sources of incremental revenues is included on pages 10 and 11 below. SH&E produced alternative estimates of CRS profitability substantially higher than those of United and American.

Objectives, Scope, and Methodology

Our initial objective was to assess the reasonableness of the conflicting estimates of the profitability of the computerized reservation systems owned by United and American Airlines. Our assessment was based on a review of their analytical methods, theories, and assumptions used in preparing these estimates, and was intended to determine if there were any grounds for allegations that United and American are earning excessive profits from their ownership of CRSs. In the course of our review, we examined a number of studies and reports, including the testimony of United and American Airlines at Senate hearings, the critique of this testimony by SH&E, additional submissions by United and American in rebuttal of the critique, and certain documents produced during the CAB rule-making proceeding. We also spoke with representatives of two associations of travel agents.

During the course of our review, the Department of Justice issued its report on the CRS market. As agreed with your offices, we expanded the scope of our review to include a review of the Justice report.

Also as agreed, we limited our review to the information contained in the documents listed above. We did not contact officials from either United, American, or CRS-using airlines, nor, as agreed, did we attempt to verify the airlines' cost and revenue data or their cost allocation procedures. We also did not review the enforcement of the rules by the Department of Transportation.

The Conflicting Estimates of CRS Profitability

In March 1985 United presented testimony before the Senate Subcommittee on Aviation in which it estimated its internal rate of return (IRR)[1] on its Apollo system to be 5 percent over the period 1975-87. At the same time, American testified its Sabre system IRR to be 18.8 percent over the period 1976-90. SH&E examined United's and American's claims of normal profits and concluded that United's and American's IRRs were 160.5 percent and 65.7 percent, respectively. SH&E stated that United and American had dramatically underestimated their profitability because they

- did not include incremental revenues,
- did not include savings on their own reservation costs,
- included expenditures in their profitability calculations that benefited only the CRS vendors and not the users, and
- did not include an end-of-period value in the calculation of the IRR for the systems.

SH&E also used net income data as the basis of its IRR estimates, which resulted in a higher IRR than the cash flow data used by United and American. Our views together with those of United, American, and SH&E on these issues are outlined in table 1 and are discussed below.

Table 1: Summary of Views on Components of CRS Profitability

	United Airlines	American Airlines	Simat, Hellison & Eichner	GAO
Incremental revenues	Exclude	Exclude	Include	Include
Reservation cost savings	Include	Include	Include[a]	Include
Costs benefiting vendor only	Include	Include	Exclude	Include
End-of-period value	Include[b]	Exclude	Include	Include
Cash flow vs. net income	Cash flow	Cash flow	Net income	Cash flow

[a] SH&E added an explicit estimate of the reservation cost savings without deducting United's and American's booking fees

[b] Based on book value. GAO concurs with SH&E's use of market value

Incremental Revenues

SH&E estimates that Apollo and Sabre will generate profits from incremental revenues of $648.6 million and $547.7 million, respectively, for their airline owners over the 1978-90 period. They base this estimate on a 1983 analysis for United which concluded that incremental revenues gained by automating a travel agent with Apollo, as opposed to a competing airline-owned CRS, would increase airline revenues for United by 13 percent. SH&E assumes that the CAB rule eliminates one-half of this benefit, and it further assumes that 40 percent of incremental revenues accrue to after-tax profits (the extra passengers add little to costs but raise load factors and profits).

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[1] Internal rate of return (IRR) is the discount rate that makes the net present value of the cash flows of revenues and costs over the life of a project equal to zero. The residual value of a project's assets is a future cash inflow. The size of the IRR indicates the attractiveness of an investment opportunity. It is a standard measure of the profitability of projects that incur most costs early in the project's life and then have a long payback period.

Neither United nor American believes that incremental revenues should be included in calculating the profitability of a CRS. United further criticizes the SH&E study, arguing that all incremental revenues for Apollo were generated before the CRS rule. Thus, United estimates that profits from these revenues totaled $41.5 million over the period 1978-84. United also assumes that only 10 percent, rather than 40 percent, of incremental revenues accrue to profits. Finally, United notes that the 13-percent incremental revenue estimate cited by SH&E includes both the added ticket sales from automating an agent with Apollo and the revenues retained by not losing that agent to the CRS of a competing airline. United believes that only the added ticket sales should be included and so reduces incremental revenues to 6.5 percent of travel agent sales in the pre-rule period.

We agree with SH&E that incremental revenues should be included in calculating CRS profitability because the profitability of an asset should be based on a full accounting of all its revenues and expenditures. However, we believe there is insufficient evidence to derive an estimate of the magnitude of incremental revenues or to assess the reasonableness of the conflicting estimates. While the United estimates of incremental revenues before the CRS rule went into effect are based on selected actual booking data, both SH&E's and United's estimates for the post-rule period are based on arbitrary adjustments from these pre-rule calculations. In addition, we concur with United's conclusion that SH&E, in its profitability estimates, double-counted incremental revenues by selecting the wrong base.[2]

Incremental revenues account for the largest share of the difference between the IRR estimates of SH&E and those of United and American.

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[2] SH&E used total travel agent sales revenues as the base for calculating incremental revenues. However, we concur with United that this figure already contained incremental revenues, so to add 13 percent more to this figure results in double-counting this income.

Reservation Cost Savings

SH&E stated that United and American did not account for the savings in their own reservation costs which their ownership of a CRS system provides for them. However, we found that the CRS owners do include the savings on their own systems in their profitability calculations by including an imputed charge for their own use of their systems. While this method may not reflect all the savings to the CRS-owning airline, we believe that United and American did not disregard this benefit. Further, SH&E, when adding its own direct estimate of the airlines' reservation cost savings, neglected to subtract the imputed fees included by the airlines.

Costs Benefiting Vendor Only

As SH&E stated, United and American included in their profitability calculations certain costs, such as those associated with signing up new agents, which benefited only the owners. However, we found that these costs appear to be related to CRS operations, and therefore the allocation of these costs in the way chosen by United and American is not inappropriate. To be consistent, if the additional revenues resulting from these expenditures are counted in calculating profits (as SH&E does), then the expenditures should be deducted from those additional revenues.

End-of-Period Value

SH&E stated that United and American omitted end-of-period values in calculating the IRRS for their CRSS. However, United claims that it did include an end-of-period value of $145 million in its calculation of the IRR. This is the remaining book value of its CRS as of December 31, 1987. SH&E believes that end-of-period value should be based on the market value of the system which it calculates as 5 times earnings in the last year of the IRR period. Using SH&E's approach, United reestimates end-of-period value to be $190 million. American did not include an end-of-period value in its calculation. SH&E believes, and we agree, that the end-of-period value should be based on the market value of the system, including the present value of any future incremental revenues that the system can generate. Market value better reflects the remaining economic life of a productive asset. Book value, on the other hand, depends on the depreciation schedules used, and these are often chosen to maximize tax benefits and may have little relationship to what an owner could receive from selling an asset.

SH&E estimates the end-of-period market value for United's CRS to be $635 million. We do not have sufficient data to determine if this estimate is correct. Most of the difference between the market value and the book value estimates is due to the impact on market value of the incremental revenues that SH&E anticipates will persist. SH&E's market value estimate is significantly higher because it assumes that the rule eliminates only one-half of incremental revenues and that sources other than overt screen bias will continue to generate important additional income for CRS owners.

Net-Income Versus Cash-Flow Basis

The estimates of IRR by SH&E and by United and American are also not comparable because United and American used cash flow as the basis of their calculations, while SH&E used net income. We believe, on the basis of accounting principles, that the cash-flow approach is more appropriate. While cash flow is the more generally used basis for performing such calculations, SH&E used net income because the data to perform the calculation on a cash-flow basis were not available for United. In the case of American, for which both a cash-flow and a net-income calculation can be performed, the net-income approach produces an IRR of 65.7 percent while the cash-flow approach produces an IRR of 45.7 percent.

The Department of Justice Study

In June 1985, the Senate Committee on Appropriations, in its report on transportation appropriations for fiscal year 1986, directed the Department of Justice to prepare a report on competitive practices of airlines that own CRSs. Justice issued this report in December 1985. It discusses the market structure of the CRS industry, the prospects for new entry into the market, the problems of display bias and unequal access to marketing information (which may generate incremental revenues), and booking fees. The report also discusses the desirability of possible remedies for market power in the industry.

Market Structure

The Department of Justice report concludes that the market for CRS services is, and will remain in the foreseeable future, highly concentrated, with United and American continuing to control about 70 percent of all domestic revenue booked by travel agents. Justice notes that there has been no new entry since 1983 and no significant change in the market shares of the six CRS vendors. Justice also observes that even CRS vendors with modest market shares can have significant market power[3] with respect to airlines. Since most airlines rely heavily on travel agents for ticket sales, Justice believes that they must be willing to allow booking through any CRS used by a significant fraction of travel agents.

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[3] Market power is the ability of a seller to have a perceptible influence over the price of a good or service.

Overall, we concur with the Justice Department's analysis of market structure and conclude that both United and American (as well as, in some markets, other CRS vendors) have, and are likely to continue to possess, significant market power.

Entry Into the CRS Market

The Justice Department believes that it is highly unlikely that a wholly new CRS system will be developed and introduced into the CRS market. Justice cites several barriers to wholly new entry, including high costs of computer equipment and software development as well as the "liquidated damages clauses" in CRS contracts. These clauses require that, before a travel agency cancels its contract with United or American, the agent must pay 80 percent of the fees which the vendor would have received over the remaining life of the contract. If entry occurs at all, Justice anticipates that it will most likely be a buyout of an existing CRS by a group of other airlines intending to create a neutral booking system. Justice believes that such a buyout could strengthen competition if the new owners invested additional resources in the CRS and expanded its market share. Justice notes, however, that expanding an existing CRS market share is becoming less feasible because most travel agents have already been automated and have signed long-term contracts with existing CRS vendors. Despite its lack of confidence in the likelihood of entry, Justice believes that the buyout of an existing CRS to create a neutral system offers promise for increased competition in the CRS market and concludes that no further action to address concerns about CRS market power is needed at this time. However, Justice did suggest that DOT may wish to consider, at some time in the future, modification of the CRS rules to promote new entry.

We agree with Justice that wholly new entry is highly unlikely because of the barriers to entry cited above. We are less sanguine than Justice about the buyout of an existing system offering a significant solution to the problem of market power. While a new entrant might reduce the market share of United and American, the need for airlines to have access to all CRS vendors whose systems are used by a non-trivial number of travel agents would continue to give the existing CRS vendors market power even if a new entrant eroded their share of travel agents. Substantial erosion of market share is unlikely in any case because of the liquidated damages that might be paid when a travel agent switches to a new CRS. Therefore, we do not believe that new entry, even in the unlikely event that it should occur, would have any significant effect on the captive relationship between the existing CRS owners and the airlines that need access to travel agents using the owners' systems.

Incremental Revenues

The Justice report discusses several characteristics of the CRS market that might generate incremental revenues in spite of the CRS rules, including

- the potential for residual screen biases, such as limitations on listings of connecting flights and undue preference for on-line flights (i.e., on the same airline);
- the CRS owners' superior access to useful marketing data on competing carriers and travel agent bookings; and
- the greater demand by travel agents for the CRS owner's last seat availability data and boarding passes for the CRS owner's flights.

The Justice report does not comment on other possible sources of incremental revenues, such as the so-called halo effect—leading the travel agent to give an automatic preference to the carrier whose CRS the agent uses—and possible rule violations such as misloading other airlines' fare and schedule data into the system.

Justice cites different types of complaints it has received about continuing display screen bias and unfair access to CRS-generated marketing data. The Department believes that complaints about biased display screens indicate that there is a continuing potential for bias, which we believe could generate incremental revenues. However, Justice concludes that these forms of bias are covered by the current rules and, therefore, that no further steps need to be taken until sufficient time has passed to judge the rules' effectiveness. Similarly, with regard to access to marketing data, Justice concludes that this problem is adequately covered by the CRS rules and, in any case, is probably not a serious threat to competition. As with display screen bias, Justice concludes that possible problems of unfair access to marketing data do not warrant further regulatory action at this time.

The Justice Department report concludes that CRS systems owned by airlines may continue to have an advantage in the CRS industry because airline-owned CRSs offer the travel agent access to the most comprehensive data on seats available on the vendor's flights. Airline-owned CRSs also offer the travel agent such enhancements as availability of boarding passes on the vendor's flights. These benefits encourage travel agents to book flights on the CRS vendor's airline and generate incremental revenues. While Justice believes that even if this technology can be developed to eliminate these advantages, the airlines owning CRSs may not implement the new technology.

We agree with Justice that the ownership of a CRS by an airline confers several marketing advantages over its competition which we believe represent plausible sources for persistent incremental revenues. Residual screen bias can cause travel agents to favor the flights of CRS owners; CRS-owning airlines can use their superior access to marketing data to fine-tune their marketing strategies; and superior seat availability data increases the likelihood of agents subscribing to an airline-owned CRS and of booking flights on the CRS-owning airlines. These advantages, combined with the "halo effect" and the potential for purposeful misloading of competitors' flight data, suggest that there are a number of sources of persistent incremental revenues and that these revenues could be substantial.

These incremental revenues to the CRS-owning airlines raise concerns about the effectiveness of competition in the airline industry because they are not a reward for providing the traveling public with better air service, but accrue as a result of the airline's simultaneous ownership of the airline and the CRS. These revenue gains by the CRS owners represent less traffic and less revenues for their competitors. If these revenues are substantial, they could weaken the ability of rival airlines to compete effectively.

Booking Fees

Justice is concerned that the CRS-owning airlines might use their market power over other carriers to charge excessive fees for booking flights through their systems.[4] Justice says it is unclear whether current booking fees are substantially above costs, but if they are, they could have significant anticompetitive effects when paid by one airline to a competing airline. They could raise the costs of the CRS-using airline to the point that it could not compete effectively in some markets with the CRS-owning airline.

Justice concludes that it is unable to determine whether current booking fees are excessive because of methodological uncertainties in calculating the costs that the booking fees might reasonably cover and the uncertainty about what rate of profit would be considered "excessive." Justice did not recommend any course of action to resolve these uncertainties.

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[4] The Justice Department report refers to these fees as "access fees."

We agree with Justice that CRS vendors have market power that could lead to booking fees that substantially exceed the costs of providing the service. Airlines are likely to be willing to pay substantial fees to assure that their flights can be booked by travel agents using any CRS system. We further agree that attempts to derive cost-based booking fees would be subject to criticism on methodological grounds. Nevertheless, we believe that further study of the allocation of costs among airlines and travel agents is feasible and could be useful for evaluating whether airline-owned CRSs are placing an unfair burden on other airlines. In contrast to the limited discretion of airlines in paying booking fees, travel agents, the primary users of CRS systems, can choose among CRS vendors and, notwithstanding liquidated damages, have the ability to negotiate subscription fees and secure generally favorable terms. As a result, booking fees paid by airlines could be covering a disproportionate share of costs of the CRS operation, relative to those charges that travel agents pay. For example, in early 1985, United forecasted that revenues from booking fees would be approximately double revenues from travel agent subscriptions. While there may be no hard and fast rules governing "proper" cost allocation, we believe that inquiry along these lines could better define the competitive impacts of different CRS pricing strategies.

Conclusions

We conclude that the profitability of United's and American's CRSs, as measured by the IRR, is probably higher than United and American estimated, because pre-rule incremental revenues should be included in the computation of the IRR and because, as the Justice Department report indicates, there continue to be several plausible sources of incremental revenues following implementation of the CRS rules. However, we also conclude that two elements of SH&E's estimates of CRS profitability are probably too high, namely their adjustment for reservation cost savings and their adjustment for costs that benefit only vendors. We also believe that SH&E's use of net income as a basis for its estimate may have overstated the IRR. The projections of incremental revenues made by SH&E and the CRS-owning airlines were based on data from the period before the CRS rules became effective in November 1984. We do not believe these data provide a reliable basis for estimating the size of incremental revenues since the rules went into effect. Because of the poor quality of the data on incremental revenues and the potential significance of incremental revenue in estimating profitability, we believe the available data are insufficient for us to develop our own profitability estimates.

We are in substantial concurrence with many of the conclusions of the Justice report. We generally concur in Justice's analysis of market structure and conclude that both United and American (as well as, in some markets, other CRS vendors) have, and are likely to retain, significant market power. We also agree with Justice's analysis that new entry into the CRS market is unlikely.

Along with Justice we agree that there is a reasonable probability that some market advantages will continue to accrue to the CRS-owning airlines in the post-rule era, but that the CRS rules may adequately address many of the concerns about continued unfair practices alleged by CRS-using airlines. Finally, we agree with Justice that it is unclear whether current booking fees are substantially above costs and harm competition in air travel markets.

However, we are less hopeful than Justice that the market advantages of United and American may be eroded by new entry in the CRS market. We believe that new entry would lead to increased competition among CRS owners for agent subscribers but would do little to alter the captive relationship between CRS owners and the other airlines. Each airline that relies on travel agents for a significant volume of ticket sales must be willing to pay the booking fees charged by any CRS owner that has signed up a non-trivial portion of the travel agents. Airlines that refuse to pay risk forfeiting substantial revenues.

In summary, we believe that substantial unanswered questions remain about the effectiveness of the CRS rules in controlling market power. The key issues that need to be resolved are (1) the extent to which airline-owned CRSs continue to generate incremental revenue even after the CAB rules were implemented, (2) whether airline-owned CRSs are using their market power to charge excessive booking fees, and (3) whether action is needed by DOT or the Congress to better assure adequate competition in the CRS market and ultimately in the airline industry as a whole.

Our analysis of the CRS profitability studies and the Justice Department report indicate that DOT needs to exercise its oversight responsibility to deal with unresolved issues on the persistence and size of incremental revenues and the effects of booking fees on competition.

To deal with incremental revenue, DOT should identify the existence, if any, of incremental revenues and quantify, to the extent possible, the significance of those revenues. This study is important because incremental revenues are the single most significant factor in determining the true profitability of airline-owned CRSS. In addition, incremental revenues, to the extent they continue to be significant, would offer direct evidence of problems of market power and anticompetitive conduct. The existence of incremental revenues would imply that travel agents are recommending airlines for their customers not on the basis of the price and service quality offered by various airlines, but rather of which airline happens to own the CRS used by the travel agent. To the extent that CRS owners gain incremental revenues, they are rewarded for their ownership of CRSS, not for offering the best price and service options to airline passengers.

To address the booking fees issues, DOT should examine the booking fees charged by airline-owned CRSS to determine whether these fees are being used to reduce other airlines' competitiveness. This study would focus on whether booking fees are being used to collect revenue that is out of line with the costs of providing booking services and is disproportionate to revenues directly generated for the CRSS by travel agent subscription fees.

DOT is the appropriate organization to conduct these studies because it has assumed responsibility for monitoring compliance with the CAB rules on airline-owned CRSS and for helping assure the competitive health of the airline industry in the post-deregulation era. These analyses are needed to assess the impact of the CAB rules and to determine whether additional actions are needed to strengthen or enforce the rules.

Recommendation

In line with DOT's responsibility to evaluate the effectiveness of the existing CRS rules, we recommend that the Secretary of Transportation undertake the two studies discussed above regarding the persistence of incremental revenues and the effect of booking fees on competition, and take additional action, if warranted by the results of the studies, to enforce compliance with or to strengthen the CRS rules. The Secretary should report to the concerned committees of the Congress on the results of the studies and any actions planned. To assess the possible persistence and size of incremental revenues, DOT should study the behavior of individual travel agents who subscribe to different CRS vendors in the post-rule period. To assess the anticompetitive effects of booking fees, DOT should examine the potential anticompetitive effects of these fees in specific types of air travel markets. The study should also examine the likely impacts of possible remedies to the anticompetitive effects of booking fees.

While we did not request the Department of Transportation or the Department of Justice to review and comment officially on a draft of this report, we obtained the views of directly responsible officials during the course of our work and have incorporated their views in the report where appropriate. We conducted our review in accordance with generally accepted government auditing standards. As agreed with your offices, we plan no further distribution of this report until 14 days after the date of this letter, unless you publicly announce its contents earlier. At that time we will send copies to other interested committees, the Attorney General, the Secretary of Transportation, and other interested parties.

J. Dexter Peach
Director

Congress of the United States
Washington, DC 20515

May 21, 1986

Honorable Elizabeth Dole
Secretary of Transportation
Washington, D.C. 20590

Dear Elizabeth:

In a recent report, the General Accounting Office recommended that the Department of Transportation undertake a study to determine whether airlines owning Computer Reservation Systems (CRS's) are charging excessive fees to other airlines for participation in the CRS. We are writing to urge the Department to act favorably and expeditiously on that recommendation.

As you know, the Aviation Subcommittees of the House Committee on Public Works and Transportation and the Senate Committee on Commerce, Science and Transportation have long been concerned over the anti-competitive effects which may result from the dominant position of two large airlines, American and United, in supplying the Computer Reservation Systems used by airline travel agents. In recent years most travel agencies have become automated. As a result, 80-90% of the tickets sold by travel agents are now processed through a CRS. It has become difficult, if not impossible, for an airline to compete effectively if it does not have access on reasonable terms to the CRS systems used by agents. The CRS industry is now dominated by United and American and there is continuing concern as to whether these airlines are using their control of a significant portion of the CRS market to take competitive advantage of other airlines.

In 1983, the House Aviation Subcommittee conducted extensive hearings on the CRS problem. Following these hearings the House Aviation Subcommittee Chairman and Ranking Minority Member wrote to the Civil Aeronautics Board suggesting that the CAB establish standards of fair competitive practices for the CRS industry. In response, CAB adopted rules which prohibited various unfair competitive practices, including bias in the display of schedules, and discrimination in the fees charged to airlines to participate in a CRS system.

In March 1985 the Senate Aviation Subcommittee held hearings on CRS related issues, and concluded that bias in the systems favoring owner-carriers was prejudicing non-owner airlines. The Subcommittee expressed its concerns to those airlines providing biased information and those carriers voluntarily eliminated the most biased features of their respective systems.

Despite the CAB's rulemaking and some CRS owners' remedial measures, we are concerned that there may continue to be unfair competitive practices in the CRS industry. A major area of concern has been the fees charged by United and American for airlines to participate in their system. Following the CAB rulemaking CRS vendors were required to establish uniform booking fees for all airlines which raised these fees by as much as 500%. We remain concerned that the fees charged by American and United may produce unreasonably high profits, and that unreasonable fee levels may unfairly affect the costs of non-owner carriers.

In July 1985, we asked the General Accounting Office to study the profits generated by United and American's CRS systems, and to review several studies on the profitability question. GAO completed its study on May 9, 1986. It concluded that the CRS booking fees and related revenues received by CRS owners have the potential for creating competitive problems in air transportation. GAO recommended that the Department of Transportation, which has jurisdiction over the CRS rules, conduct a further evaluation of these problems to determine whether new rules or legislative action are needed. We join in this recommendation.

In its report GAO raises two major concerns. First, GAO notes that there is reason to believe that United and American are continuing to realize incremental revenues from their CRS related activities notwithstanding the rules adopted by the CAB. GAO's second concern is that CRS booking fees may be higher than appropriate because of the market power of existing CRS's.

Incremental revenues are revenues resulting from additional ticket sales which a CRS vendor may realize because a travel agent uses its Computer Reservation System. GAO agrees with the findings in a Department of Justice study which indicates that the airlines owning CRS's have marketing advantages over competing airlines. In GAO's view, these marketing advantages represent "plausible sources for persistent incremental revenues." Specific possible sources of incremental revenues cited by GAO include continued bias of CRS screens in favor of the flights of CRS owners; superior access of the CRS owners to marketing data; superior seat availability on the CRS for flights of the airline owning the CRS; and the potential ability of the CRS owners to misload competitor's data. GAO concludes that:

> "These incremental revenues to the CRS-owning airlines raise concerns about the effectiveness of competition in the airline industry, because they are not a reward for providing the traveling public with better air service, but accrue as a result of the airline's simultaneous ownership of the airline and the CRS. These revenue gains by the CRS owners represent less traffic and less revenues for their competitors. If these revenues are substantial, they could weaken the ability of rival airlines to compete effectively."

GAO's second concern is that the airlines owning CRS's may be charging excessive booking fees to their competitors. GAO points out that airlines find it necessary to participate in any CRS which is widely used by travel agents, and that this strong need to participate may give the airlines owning CRS systems the ability to charge fees which exceed their costs. Excessive fees can raise the costs of competing airlines and limit their ability to compete effectively. GAO believes that this problem, as well as the incremental revenue problem, needs to be carefully studied by DOT. We agree.

In sum, we are in agreement with both of the concerns that the GAO report expresses as well as GAO's conclusions. Our Subcommittees may wish to hold hearings on these important issues.

We believe that DOT, which has been given the authority of the Civil Aeronautics Board over CRS systems, has the responsibility to continue the work begun by the GAO. We strongly urge you to follow the GAO recommendations and to conduct the studies they propose. To be most useful, your studies should go beyond theoretical analysis and should examine the records of carriers and travel agents to determine whether the CRS owners continue to earn incremental revenues, whether the profits earned by CRS systems are excessive, and what effects incremental revenues and booking fees are having on competition between airlines.

We would appreciate a prompt report on whether you intend to conduct these studies and, if so, when you anticipate that the studies will be completed.

Thank you for your cooperation.

Sincerely,

Nancy

NANCY LANDON KASSEBAUM
Chairman
Subcommittee on Aviation
Committee on Commerce, Science, and Transportation
United States Senate

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation
Committee on Public Works and Transportation
House of Representatives

John Paul

JOHN PAUL HAMMERSCHMIDT
Ranking Minority Member
Subcommittee on Aviation
Committee on Public Works and Transportation
House of Representatives

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

June 23, 1986

The Honorable Norman Y. Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works and
Transportation
House of Representatives
Washington, D.C. 20515

Dear Norm:

Thank you very much for your letter, cosigned by Congressman Hammerschmidt and Senator Kassebaum, requesting that the Department undertake two studies on airline computer reservations systems (CRS). The first study would address whether CRS vendors continue to receive "incremental revenues," despite the rules that have been promulgated by the Civil Aeronautics Board to eliminate display bias. The second study would assess whether CRS vendors are charging their competitors "excessive" booking fees.

The Department has reviewed the General Accounting Office (GAO) report you reference in your letter, as well as the 1985 Department of Justice (DOJ) report on the CRS industry. Both studies discuss the serious data and methodological problems that must be overcome to make further analyses on the CRS industry useful. For example, DOJ concludes "... that any attempt to compare access fees to costs will be subject to methodological criticism, and the results will vary significantly, depending on the methodology chosen." And while the GAO believes that additional analyses are feasible, GAO staff have acknowledged to us that the task of assessing incremental revenues would be problematic in respect to both the gathering and analysis of the relevant data.

Therefore, because of the complexity of the underlying economic and regulatory issues involved in undertaking these studies, as well as the serious data collection problems that could hamper their preparation, we intend to proceed by meeting informally with interested parties, including staff from your committee, DOJ staff, GAO staff, CRS users, and vendors to discuss the feasibility of conducting the studies you request. I will apprise you of the results of our consultations by August 1.

Identical letters are being sent to Congressman Hammerschmidt and Senator Kassebaum.

With warmest regard,

Sincerely,

Elizabeth

Elizabeth Hanford Dole

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

October 9, 1986

The Honorable Norman Y. Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works and Transportation
U.S. House of Representatives
Washington, D.C. 20515

Dear Norm:

As I proposed in response to your request, cosigned by Congressman Hammerschmidt and Senator Kassebaum, the Department has held consultations to assess the feasibility of the two studies of airline computer reservation systems (CRSs) recommended by the General Accounting Office (GAO). These meetings have been helpful in understanding the issues better and clarifying questions of methodology and data availability.

Upon consideration of the views expressed in these meetings, we believe that the best way to proceed is to gather from the CRS vendors additional information, data, and analyses bearing on their CRS costs and revenues, incremental revenues, market shares, and liquidated damages clauses in subscribers' contracts. I have instructed my staff to prepare an order detailing the required information, and our target date for issuing the order is November 3. In order to refine our data requirements, we plan to ask the carriers sto review the draft order. Besides providing us with a better understanding of the questions raised by the GAO, an analysis of this information will assist us in clarifying the extent of potential barriers to competition in the CRS industry.

Our goal is to prepare an analysis of the information we receive from the vendors within six months after our order is issued. We intend to consult periodically with your staff on the progress of our investigation and will notify you of any anticipated changes in our schedule.

An identical letter is being sent to Congressman Hammerschmidt and Senator Kassebaum.

With warmest regard,

Sincerely,

Elizabeth

Elizabeth Hanford Dole

JAMES J. HOWARD, NEW JERSEY, CHAIRMAN

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HELEN DELICH BENTLEY, MARYLAND
JIM LIGHTFOOT, IOWA
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RICHARD J. SULLIVAN, CHIEF COUNSEL
CLYDE E. WOODLE, CHIEF ENGINEER
MICHAEL J. TOOHEY, MINORITY STAFF DIRECTOR

Committee on Public Works and Transportation
U.S. House of Representatives
Room 2165, Rayburn House Office Building
Washington, DC 20515
TELEPHONE: AREA CODE 202, 225–4472

November 21, 1986

Honorable Elizabeth Dole
Secretary of Transportation
Washington, D.C. 20590

Dear Elizabeth:

Thank you for your letter of October 9 in which you indicate that the Department of Transportation intends to gather and analyze information on airline computer reservation systems. I fully support these actions and urge that they go forward with all possible speed.

A thorough review of computer reservation systems is even more important now than it was when Senator Kassebaum, Congressman Hammerschmidt and I originally requested the review in May. The recent wave of airline mergers has made it increasingly important that we preserve an environment in which there will be maximum competition between the surviving airlines. The environment must also facilitate entry by new competitors whenever possible.

The Department of Transportation has the authority and the responsibility to help create a competitive environment. Although the airline industry's economic decisions have been largely deregulated, there are important areas in aviation which continue to be subject to government control. DOT's decisions in these areas may have significant effects on the competitive environment.

I have recently read in the trade press that top officials of your Department have been holding meetings with the airline industry to express DOT's concern that in the 100th Congress there will be efforts to undo airline deregulation. I am a strong supporter of airline deregulation and I certainly will be working to preserve it. However, deregulation may be unsupportable if the Department of Transportation and other executive branch agencies fail to preserve an environment which fosters competition. I strongly urge you to bear this in mind as you carry out your responsibilities in those areas of aviation which continue to be subject to regulation.

For example, the Department of Transportation has the responsibility for maintaining and developing the air traffic control system and assisting in the development of airports. One potential constraint on airline competition is the inability of the airport and air traffic control systems to accommodate all the service which airlines are able to provide. Accordingly, in carrying out its responsibilities DOT should ensure that the airport and ATC systems are fully developed, to allow operation of as much airline service as possible without sacrificing safety. If all proposed service cannot be accommodated, any capacity restrictions on operations must be administered in a manner which facilitates competition.

In addition, the airline industry continues to be governed by the antitrust laws, and these laws must be vigorously enforced to promote competition. My colleagues and I have written you on a number of occasions expressing our concern that the domination of the CRS industry by two large airlines may be creating restraints on competition which are inconsistent with the antitrust laws.

To deal with the computer reservation systems problem, I first urge you to go forward promptly with the economic studies described in your letter. Furthermore, we need to begin considering whether legislation is needed.

On August 15, 1986, I introduced H.R. 5466, the Airline Computer Reservation Systems Arbitration Act. A copy of that bill and my introductory remarks are enclosed. In these remarks I expressed my concern that notwithstanding the steps taken by the Civil Aeronautics Board to regulate the CRS industry, there continue to be unfair competitive practices. Such practices have included excessively high fees charged to airlines to participate in CRS systems, continued bias in the display of schedules, and high liquidated damages which must be paid before a travel agent can change CRS systems. Late in 1985, a Department of Justice study concluded that (1) despite the CAB's regulatory actions there had been little reduction in the market power of CRS owners and (2) that it did not appear as if non-vendor airlines possessed any substantial leverage in negotiating with the CRS owners over booking fees.

As a solution to these problems, the legislation I introduced would give either airlines participating in a CRS system or travel agents the right to binding arbitration on the issue of whether provisions in a CRS contract are fair and reasonable. I believe that arbitration is worth serious consideration as an alternative to further government regulation. Arbitration appears to be a more efficient and less burdensome means of resolving CRS problems than regulatory or judicial intervention.

It is my intent, and may well be the intent of some of my distinguished colleagues as well, to reintroduce the CRS arbitration legislation at the outset of the 100th Congress. It is also very likely that the Aviation Subcommittee will wish early in the next Congress to hold hearings on the CRS issue, on the arbitration concept, and on other possible remedies as well (such as outright regulation of CRS booking fees and contract terms to assure fair and adequate competition).

In order for us to give adequate consideration to these questions, we would like to have the benefit of your Department's views on these issues, including the results of the information gathering and analysis you are now undertaking. I, therefore, ask you to report to the Subcommittee by letter on or before January 30 on the above issues, including:

- Whether your Department disagrees with the view expressed by CAB, DOJ and GAO that market power exists in the CRS industry.
- Whether that market power has reduced, or threatens to reduce, the degree of competition in airline services available to the public and the fairness of such competition.
- Whether your Department views the Arbitration Act specifically, or the arbitration concept generally, as a reasonable solution to these competitive problems.
- If your Department does not view arbitration as a reasonable solution, then what does it propose to do about these competitive problems in order to assure that the consumers' interest in and reliance on full and fair competition among airlines is protected?

As always, I appreciate the opportunity to work with you, and I look forward to having the benefit of your views in time for them to be considered as the Subcommittee makes its plans for the upcoming year.

Sincerely,

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

February 12, 1987

The Honorable Norman Y. Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works and Transportation
House of Representatives
Washington, D.C. 20515

Dear Norm:

Thank you for your letter expressing your concerns as to the potential for computer reservation systems (CRSs) to be used in an anticompetitive manner and requesting our comments on the "Airline Computer Reservations System Arbitration Act of 1986" (H.R. 5466).

I share your belief that CRS market power has important implications for competition in the airline industry and we are therefore actively investigating the significant CRS issues. On February 2, 1987, the Department issued an order to obtain detailed data and other information from the airline CRS vendors (copy enclosed). The information requirements of this order are particularly intended to help us evaluate whether CRS market shares are changing, the reasonableness of CRS fees, the extent and source of incremental revenues, and the effect of liquidated damages provisions in CRS contracts.

We may decide it is necessary to issue other information requests to CRS vendors and other airlines on these and other CRS issues that warrant further investigation.

As to our views on the Arbitration Act, we have looked carefully at your bill and discussed it with a representative of the agency that would implement it, the Federal Mediation and Conciliation Service. While the concept of impartial arbitration is attractive, we are concerned about a number of drawbacks, including the dangers in having individual arbitrators resolve extremely complex issues of major competitive consequence for an entire industry. Beyond that, I would prefer to continue our ongoing CRS investigations before commenting further on your bill.

I look forward to sharing with you and other interested members of Congress the results of our investigation, as soon as it is concluded.

With warmest regard,

Sincerely,

Elizabeth

Elizabeth Hanford Dole

Enclosure

Order 87-2-1

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY
WASHINGTON, D.C.

Issued by the Department of Transportation
on the 2nd day of February, 1987

SERVED FEB 2 1987

Information Directives Concerning Computer Reservations Systems	Docket 44643
M.I.T.A., Enforcement Complaint Against AMERICAN AIRLINES and UNITED AIR LINES	Docket 43202

ORDER

The regulations governing the operation of airline-owned computer reservations systems ("CRS's"), 14 CFR Part 255, were adopted by the Civil Aeronautics Board on July 31, 1984, and became effective on November 14, 1984. In developing the CRS rules, the CAB directed the five airline vendors that owned and operated CRS's 1/ to submit special reports containing information relevant to a number of CRS issues. Order 83-8-105 (August 26, 1983). The Department has retained that information in Docket 41663.

Despite promulgation of the CRS rules, questions have been raised about the potential for CRS vendors to exert market power and thereby influence competition in the airline industry. Non-vendor carriers claim that vendors continue to charge excessive access fees to airline participants, and use improper tactics to gain so-called incremental airline passenger revenues at the expense of their airline competitors. In addition, some travel agents have complained that CRS vendors are attempting to

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1/ American Airlines, Inc.; United Air Lines, Inc.; Trans World Airlines, Inc.; Eastern Air Lines, Inc.; and Delta Air Lines, Inc.

maintain their market power by including unreasonable "liquidated damages" clauses in their contracts with subscribers. This contention is raised in a pending third-party enforcement complaint filed by Membership of Individual Travel Agents ("M.I.T.A.") in Docket 43202.

These issues have been reviewed in reports issued by two government agencies. The Department of Justice concluded in December 1985 that CRS vendors continue to possess market power, but that it was unclear whether that power was being exercised by charging supracompetitive access fees to other airlines. 2/ The General Accounting Office also issued a report in which it expressed concern about the market power of CRS vendors and the continuing potential for anticompetitive practices. 3/ It recommended that this Department should initiate certain studies in this area. The leaders of the House and Senate aviation subcommittees have also requested that we initiate studies in this area.

CRS market power, possible abuses of such power, and the effectiveness of existing CRS rules in curbing any abuses have important implications for airline competition. In order to examine this issue, we find it necessary to gather additional information to update our knowledge about the status of CRS competition and about the effects of certain CRS practices. We have, therefore, decided to initiate an investigation into the CRS industry. The initial focus of our inquiry will be in four general subject areas -- the level of participation fees and the relationship of fees to costs, the amount of incremental revenues, market shares, and the effect of liquidated damages clauses in subscriber contracts. 4/

2/ 1985 Report of the Department of Justice to Congress on the Airline Computer Reservation Industry, December 20, 1985.

3/ United States General Accounting Office Report to Congressional Requesters, Airline Competition: Impact of Computerized Reservation Systems. Report No. GAO/RCED-86-74, May 1986.

4/ Because we conclude that the latter issue is better examined in a broader context as outlined in this order, we are dismissing M.I.T.A.'s complaint, without prejudice to a later refiling.

This order requiring CRS vendors to submit special reports pursuant to section 407(a) of the Federal Aviation Act is the first step in our investigation. As it proceeds, we may find it necessary to seek additional information from both non-vendors and vendors that is pertinent to the areas of inquiry outlined above or other issues that arise. 5/

We recognize that the investigation will place some burdens on the parties from which we seek information, and wherever possible we will attempt to work with those parties to avoid unnecessary burden, as well as to improve the quality of the information provided. With those goals in mind, we supplied an earlier draft of the attached information directives to the CRS hosts and other interested persons, including travel agent groups and non-vendor carriers. We also published notice of this action in the Federal Register. 51 Fed. Reg. 39604 (October 29, 1986). Thereafter, we consulted informally with all interested parties. This order and the information directives reflect the comments and suggestions that we received. In several instances, we were informed by one or more vendors that data specified in the draft were not available, or that it existed in a different form. While we have made revisions to take account of many of these problems and disparities, one or more respondents may have difficulties responding to some to the data specifications. We expect the responding carriers to undertake a conscientious effort to provide the data or, if unavailable, estimates, in a form as close as possible to that requested.

Some of the information sought in this order is sensitive for competitive reasons. A number of persons have accordingly expressed concern over the manner in which the confidentiality of the information will be maintained. Initially, we do not plan to release any of the information we receive. Although we have opened a docket to receive the special reports, we have not yet instituted any public proceedings.

5/ A number of persons have suggested that it would be useful if we obtained information on several of the areas described above from non-vendor carriers, from carriers that have recently become vendors, and from the Airlines Reporting Corporation ("ARC"), which administers the airline industry's centralized clearinghouse program for travel agent sales. We are currently considering these suggestions; if we decide to pursue them, we will issue further orders or subpoenas in the near future.

As this investigation proceeds, however, we may find it appropriate to issue reports or institute rulemaking or enforcement proceedings. Domestic and foreign air carriers, travel agents and other persons may have an interest in participating in such proceedings to the extent our rules allow. In those circumstances, it may become necessary to provide interested persons some form of access to information that is relevant to the issues involved. Should we rely on this information to conduct further administrative proceedings, we will take the steps necessary to include the appropriate information in the record of those proceedings, while protecting the confidentiality of sensitive information to the extent possible. In anticipation of that possibility, we are requiring that respondents seeking confidential treatment for any of their information follow the procedures set forth in our regulations, 14 C.F.R. 302.39. In addition, we are requiring that respondents submit a so-called Vaughan Index of the documents and data for which confidential treatment is sought, setting forth a brief description of each item, including number, title, date, subject author, and addressees. Before allowing any interested persons access to any information covered by a confidentiality request, we intend to rule on the request as it pertains to that information, and to provide all parties notice of the terms under which access will be provided. 6/

Any confidential information not used in further administrative proceedings will be returned to the supplier of the information.

We are taking this action and announcing it at this time in part because of concerns expressed in the informal consultations mentioned above. In addition, we are influenced by our experiences in handling the information assembled by the Board. Although the Board adopted its rule more than two years ago, there are still requests to publicly release confidential CRS material pending before the Department.

PAPERWORK REDUCTION ACT

This request for information is not subject to the requirements of the Paperwork Reduction Act, 44 U.S.C. Chapter 35.

ACCORDINGLY, pursuant to sections 204 and 407(a) of the Federal Aviation Act, the Department deems it necessary to compel the submission of certain information and reports and to take action, as follows:

6/ We may find it appropriate to share some or all of the information gathered through this investigation with interested Federal agencies or Congressional staff, on a confidential basis. The procedure regarding access outlined above will not apply in those circumstances.

1. United, American, Trans World, Delta, and Eastern shall respond to the questions and supply the reports and documents noted in Attachment A by March 18, 1987.

2. If any of the responding carriers object to the public release of any of the information submitted pursuant to this Order, they shall, in addition to complying with the requirements of 14 CFR 302.39, submit an index of the documents for which confidentiality is sought. The index shall identify each document by number, date, subject, author, and addressee.

3. On behalf of the Office of Aviation Enforcement and Proceedings, the complaint of M.I.T.A. against American Airlines and United Air Lines in Docket 43202 is dismissed, without prejudice.

By:

MATTHEW V. SCOCOZZA
Assistant Secretary for Policy
and International Affairs

(SEAL)

APPENDIX

General Instructions

I. The terms used in this order and in attachments shall have the same meaning as similar terms used in 14 C.F.R. Part 255. In addition, the following definitions apply:

A. "CRS" means "system." For purposes of this order, operations of (and subscribers to) the so-called "Delta/ Apollo" system shall be considered to be part of United Airlines' Apollo system.

B. "Owner(s)" of CRS's and "Host(s)" mean the following airlines, including their divisions, affiliates, parent companies, and subsidiary companies as of the point in time covered by the specific information directive or portion thereof: American, United, Trans World, Eastern, and Delta. These terms shall also be deemed to encompass, where appropriate, the host's officers, directors, employees, representatives, agents, attorneys, and consultants.

C. "Host sales outlet(s)" means offices or locations, maintained or controlled by a host, through which airline passengers may make reservations or purchase tickets. The term includes city ticket offices, reservations offices and airport ticket offices.

D. "Net air segments" means the total number of segments reserved or booked, on a given carrier or group of carriers during a given time period, minus the number of segments for which reservations or bookings have been cancelled. Responding carriers may use the same methods for calculating net air segments as they use for billing participating carriers.

E. "Segment" means any portion of an air passenger's itinerary for which a separate ticket coupon is issued.

F. "Document(s)" means (1) all written, recorded, transcribed or graphic matter including letters, telegrams, memoranda, reports, studies, forecasts, lists, directives, tabulations, or logs, minutes and records of meetings, conferences, telephone or other conversations or communications; and (2) all information contained in data processing equipment or materials. The term does not include routine daily, weekly or monthly statistical reports containing data specifically requested to be reported on a less frequent basis. Copies of documents required by this order shall be full and complete.

G. "And" and "or" shall be construed disjunctively or conjunctively as necessary in order to bring within the scope of each information directive all responses that might otherwise be construed to be outside its scope.

II. All responses to the information directives shall reflect the cumulative knowledge of the responding party and shall be accompanied by a sworn statement or statement under penalty of perjury, executed by a responsible officer of the responding party, that the responses are full, complete and accurate. All responses shall identify clearly the information directives to which they respond, as well as the person(s) who is (are) the source(s) of the information. Supplemental responses shall be submitted in the event information is discovered subsequent to initial responses.

III. Documents produced in response to any information directive shall be consecutively numbered, and shall be marked with the number of the information directive to which they respond. Responding carriers shall prepare an index of the documents produced, setting forth the document number, date, preparer, addressee, and subject of each document, and the information directive to which it responds.

IV. Unless otherwise specified, data requested in any information directive shall be on a calendar year basis for each year from 1980 through 1986. If the precise data requested is unavailable, responding carriers should make an estimate and provide an explanation of the basis upon which the estimate was made.

V. All documents used to compile responses to the Department's information directives shall be retained until further notice from the Department or its staff.

VI. Responding carriers should address inquiries concerning compliance with this order to Mr. Shelton Jackson, Deputy Director of the Office of Economics, (202) 366-5397.

Information to be Provided

Owners of CRS's shall submit to the Department three copies of a report containing the following:

OUTPUT MEASURES

1. Total number of subscriber locations as of December 31 of each year from 1980 through 1986.

2. Total number of CRT terminals installed at subscriber locations, at host sales outlets, and at other locations,

such as government and commercial accounts, that use the host's CRS, as of December 31 of each year from 1980 through 1986.

3. Total net air segments booked for travel on participating carriers by subscribers, together with a full and complete explanation of the method by which net air segments are calculated.

4. Total net air segments booked for travel on host by subscribers.

5. Estimate, for each year from 1980 through 1986, the proportions of the total number of reservations transactions processed through data processing facilities owned or controlled by the host, that were accounted for by each of the following: (a) transactions by subscribers through the CRS, (b) transactions through host's sales outlets, (c) transactions through terminals located at government and commercial accounts (d) transactions through sales outlets of carriers for whom the host provided internal reservations services. Provide a detailed explanation of the basis upon which the estimate was made, and the units of measurement used.

6. The proportion of the total sales of air transportation on the host that was accounted for by each of the following in calendar year 1986: sales through host sales outlets, sales through sales outlets of other carriers, sales by travel agents, and sales by subscribers through the host's CRS. Describe in detail the bases upon which the calculations were made.

7. A computer tape, formatted according to the attached specifications, containing the following data fields for each subscriber location (as of December 31 of the year) for the years 1985 and 1986. If information described in specifications 7.A through 7.G is unavailable for any of the time periods specified, all remaining information should be provided, together with a description of the information being omitted and the reasons for its omission.

   A. Name of agency or location.
   B. Airlines Reporting Corp. identifying number.
   C. Address, including zip code.
   D. Date agency or location became a subscriber.
   E. Number of CRT's.
   F. Net segments booked on host.
   G. Total net segments booked.

8. A complete description of the marketing information currently provided by the host to participating carriers pursuant to 14 C.F.R. 255.8, including a description of the data provided

(including formats and format records if information is provided by computer tape), the carriers to which it is provided, and the frequency of its provision.

9. The total bookings or other revenue-producing transactions via the CRS on all entities, other than airlines, whose services are displayed or sold through the CRS, quantified by type of service (indicating units of measurement for each).

10. If the CRS offers participants a "direct access," "direct link," "total access," or other enhancement whereby subscribers can view and/or utilize reservations information controlled by participating carriers, a description of the manner in which the enhancement operates and a listing of the participating carriers that use that enhancement.

REVENUES

11. Copies of any reports, studies, or documents commissioned, compiled, controlled, or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that pertain to methods of determining fees or other charges to be levied on subscribing agencies, participating airlines, or other parties for CRS participation or the access/use of CRS-related products or services.

12. A full and complete statement of the host's income and revenues from the operation of its CRS. The statement should include a detailed breakdown of sources and amounts of revenue, including but not limited to:

    A. All gross revenues received from subscribing agencies for reservations equipment installation, rental and service, printing of boarding passes, communications charges, accounting system charges, subscriber booking fees, and any other category of payments made by subscribers.

    B. All gross revenues received from participating carriers for CRS services, including but not limited to booking fees, agency sponsorship fees and charges, charges for special services such as boarding pass issuance, manual updating of schedule or fare data, or direct access participation, and any other category of fees paid by participating airlines.

    C. All gross revenues received from non-airline enterprises, such as hotels or car rental agencies, that sell or display their services through the CRS, and the revenues received for each category of CRS service offered to such enterprises.

    D. All revenues received from participating carriers and others for the sale of CRS-related data or information.

E. All revenues received from air carriers that purchase computer services from the vendor for internal use, listing the amount of revenues for each category of payments, such as booking fees, communications fees, equipment installation charges, maintenance fees, and/or rental charges.

F. All miscellaneous revenues credited by the host to its CRS operations.

Whenever revenue amounts are assigned to particular categories based on an allocation of fee payments, explain the basis for such allocation

COSTS

13. A full and complete statement of the host's total CRS operating costs, prepared according to generally accepted accounting principles, including but not limited to the following cost elements:

A. Operations, maintenance, salaries, wages and benefits;

B. Equipment costs, including depreciation, rental, lease, and parts/supplies inventory;

C. Other costs, including but not limited to rent, utilities (including communications), purchased services, and other (travel, supplies, etc.).

14. A full and complete statement of the host's other (non-operating) CRS costs, prepared according to generally accepted accounting principles, including but not limited to interest expense, loss/gain on sale of equipment, tax liability/credits, development and capital costs. Where generally accepted accounting principles would permit differing methods of accounting, the response should state which method was chosen and why.

15. For each of the cost categories presented in 13 and 14 above, a full and complete account of the allocation (if any) of costs among (a) CRS services supplied to customers (travel agents, participating carriers, and other participants such as hotels and rental car companies), (b) CRS-related services supplied to the host, (c) non-CRS services supplied to the host, and (d) non-CRS services to other customers. Describe in detail the basis for each such allocation.

16. The total of all payments, concessions, or other benefits provided to domestic travel agencies as part of the inducement to such agencies to subscribe, or remain

subscribers to, the host's system. Provide separate statements of cash and non-cash benefits, and a statement of each calculation or estimate.

17. The total of all direct payments and credits (e.g., fees for issuance of tickets) by the host to subscribers which were directly related to the subscribers' usage of the system or its enhancements.

18. A statement of the extent to which and the manner in which the fees and payments provided in response to Items 16 and 17 were included in the statement of costs provided in response to Items 13 and 14.

19. Copies of any reports, studies, or documents commissioned, compiled, controlled, or possessed by the CRS host that pertain to methods of allocating costs between (among) CRS and other airline operations.

INCREMENTAL REVENUES

20. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that analyze or discuss the existence and/or extent of sales increases or decreases on the host airline or other airlines upon installation or deinstallation of the host's CRS at an agency subscriber, upon the installation or deinstallation of a CRS from another source at an agency subscriber, or upon any proposed or actual change in the criteria used to rank or display services in the CRS, or in the weight given to such criteria.

21. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that discuss or analyze agency subscribers' practices in requesting information, using enhancements or displays, or booking passengers through CRS's, and the effect of such practices on sales made by subscribers on the host or other airlines.

22. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that discuss or analyze the effects of travel agency agreements that base the rate of commission paid in whole or in part on the number or value of bookings on the host airline ("incentive" or "override" commissions).

23. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that analyze or discuss the creation or existence of carrier-related preference in the displays of any system.

24. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that analyze or discuss the existence or degree of airline passenger preference for nonstop service, single plane service, or online connecting service.

25. A full and complete description of the host's policies and practices with respect to "incentive" or "override" commission programs, or other incentive programs such as waivers of capacity limits on discount seats, for domestic travel agents. The description shall include without limitation a detailed explanation of the bases upon which incentives are structured (e.g., sales by point of origin, by city pair, by percent of total agency sales, or some other basis), an explanation of the host's policies and practices with respect to the circumstances under which the host will seek to enter into incentive arrangements and the circumstances under which each basis will be employed, and an estimate or calculation of the percent of total incentive commissions paid pursuant to the various bases .

26. For domestic travel agencies with which the host has entered into agreements providing for payment of incentive or override commissions, provide the following information for calendar years 1985 and 1986, separately for each category of agency:

    A. The number of agency subscribers, agencies that subscribe to the host's CRS and one or more other CRS's, and agencies that do not subscribe to the host's CRS.

    B. The number of enplaned passengers on the host generated by agency subscribers, agencies that subscribe to the host's CRS and one or more other CRS's, and agencies that do not subscribe to the host's CRS.

    C. The number of net segments booked on host by agency subscribers.

    D. Total amount of base commissions for the sale of air transportation paid by the host to agency subscribers, agencies that subscribe to the host's CRS and one or more other CRS's, and agencies that do not subscribe to the host's CRS.

E. Total amount of incentive or override commissions for the sale of air transportation paid by the host to agency subscribers, agencies that subscribe to the host's CRS and one or more other CRS's, and agencies that do not subscribe to the host's CRS.

F. Total value of sales of the host's air transportation services made by agency subscribers, agencies that subscribe to the host's CRS and one or more other CRS's, and agencies that do not subscribe to the host's CRS.

27. A computer tape, formatted consistently with fields on through ten of the attached specifications, listing the name, ARC identifying number, and address, including zip code of each domestic travel agency or agency location with which the host has incentive or override commission agreements.

LIQUIDATED DAMAGES

28. Total number of subscriber locations whose subscriber contracts contain "liquidated damages" clauses setting forth the damages or termination charges to be paid by the subscriber in the event of termination, cancellation or breach of the contract.

29. A full and complete description of the terms of such clauses. If the terms vary, set forth all variations together with a statement of the number of subscriber locations whose subscriber contracts contain each variation and the criteria used by the host in establishing the variation offered.

30. A statement setting forth the payments received since January 1, 1984, from present or former subscribers because of such liquidated damages clauses.

31. A full and compete description of any provisions in any contracts with subscribing agencies that provide for the renewal of the contract upon the occurrence or non-occurrence of any event (e.g., so-called "rollover" provisions requiring the renewal of the contract when additional or different services are purchased or the amount or type of CRS equipment used by the subscriber is changed), together with a statement of the total number of subscriber locations whose contracts contain such provisions.

32. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983 (including communications with subscribers), that pertain to the host's policies or practices in determining the circumstances under which existing subscriber contracts will be extended, renewed or replaced by contracts extending for a full five-year term.

33. Provide the following information for each of calendar years 1984, 1985, and 1986:

    A. Number of subscribing agencies and agency locations converted from each competing CRS to the host's CRS, and the total number of CRT or other terminals installed at such agencies and agency locations.

    B. Number of subscribing agencies and agency locations converted from the host's CRS to each competing CRS.

    C. The total number of contracts entered into with travel agencies that were not subscribers to any system prior to the execution of the contract.

    D. The total number of renewals of existing subscriber contracts.

    E. The total number of subscriber contracts that expired without renewal.

    F. The total number of subscriber contracts that were cancelled for reasons other than the subscriber's bankruptcy or cessation of operations, and not replaced or renewed.

34. A statement of the number of subscriber contracts, entered into since November, 1984, whose length of term was less than five years.

35. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that pertain to the host's policies or practices relating to the negotiation or enforcement of "liquidated damages" clauses or "rollover" provisions in subscriber contracts.

36. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that pertain to the host's policies or practices relating to the solicitation or conversion of domestic travel agencies that subscribe to other CRS's, including those whose contracts with other hosts contain "liquidated damages" clauses.

37. Copies of any reports, studies, or documents commissioned, compiled, controlled or possessed by the CRS host, and created, prepared or revised since August 1, 1983, that analyze or discuss the host's costs, including below-cost concessions, special override commissions, and debt forgiveness, for conversion or retention of subscribers.

TRAVEL AGENCY DATA SPECIFICATIONS

Name of Data Set = DOT/Travel/Agency/Data/XXX (Where 'XXX' is Vendor's Code)

Record Length = 193 Blocking Factor = 85 Blk Size = 16405

- Field - Number	Description	Type	Location	Length	Remarks
- 01	Vendor/carrier code	Alpha	1 - 3	3	
- 02	Date of data	Num	4 - 5	2	Format 'YY'
- 03	Travel agency numeric code	Num	6 - 13	8	
- 04	Travel agency name	Alpha	14 - 43	30	
- 05	Additional line for name if required otherwise blank	Alpha	44 - 73	30	
- 06	Travel agency street address	Alpha	74 - 103	30	
- 07	Additional line for street address if required otherwise blank	Alpha	104 - 133	30	
- 08	Travel agency city	Alpha	134 - 163	30	
- 09	Travel agency state	Alpha	164 - 166	3	
- 10	Travel agency zip code	Num	167 - 175	9	
- 11	Subscription date	Num	176 - 181	6	Format 'YYMMDD'
- 12	Total number of terminals used by travel agency	Num	182 - 183	2	Packed Decimal
- 13	Net segments booked on host	Num	184 - 188	5	Packed Decimal
- 14	Total net segments booked	Num	189 - 193	5	Packed Decimal

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Committee on Public Works and Transportation
One Hundredth Congress
U.S. House of Representatives
Room 2165, Rayburn House Office Building
Washington, DC 20515
Telephone: Area Code 202, 225-4472

November 17, 1987

Honorable James H. Burnley IV
Acting Secretary
Department of Transportation
400 7th Street, S.W.
Washington, D. C. 20590

Dear Mr. ~~Secretary~~: Jim

I am writing to express my strong concern about recent increases in the fees charged to airlines whose schedules are displayed on the computer reservation systems (CRS) operated by United Airlines, Texas Air Corporation and American Airlines.

As you know, studies of CRS problems by the Department of Justice and the General Accounting Office found that even before the recent increases the fees charged by CRS systems may have been excessive and an abuse of monopoly power. At the request of several Members of Congress, including myself, the Department of Transportation is now undertaking a study of whether these fees are unreasonable.

I consider it highly inappropriate for the fees to be raised before DOT has completed its determination of whether the prior fees were excessive. I urge you to make every effort to obtain a voluntary agreement from the CRS vendors to keep their fees at the pre-October 1987 levels until the Department's investigation has been concluded.

I would also urge you to complete the Department's investigation as promptly as possible. I would like a report from the Department of the current status of the investigation and the target date for its completion.

Thank you for your cooperation.

Sincerely,

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

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Committee on Public Works and Transportation
One Hundredth Congress
U.S. House of Representatives
Room 2165, Rayburn House Office Building
Washington, DC 20515
TELEPHONE: AREA CODE 202, 225-4472

February 2, 1988

Honorable James Burnley IV
Secretary of Transportation
Washington, D.C. 20590

Dear Jim:

I am writing to request that the Department complete its study of airline computer reservation systems (CRS), Docket 44643, by March 15. As you know, the Committee considers this study to be of great importance since it will assist us in determining whether the structure and practices of the CRS industry are likely to inhibit competition between airlines. Vigorous completion is essential for the continued success of deregulation.

You will recall that the Committee has long been concerned with the question of whether the fees charged by CRS systems to airlines are producing unreasonably high profits and unfairly raising the cost of carriers not owning CRS systems. In July 1985 we asked the General Accounting Office to study these questions. In May 1986, GAO concluded that there were serious potential problems and recommended that the Department of Transportation undertake a further study of the issues. In October 1986, the Department, in response to requests from myself, Congressman Hammerschmidt, and Senator Kassebaum, agreed to undertake the study recommended by GAO, with the study to include the issue of whether the liquidated damages clauses in contracts between CRS owners and travel agents were improperly preventing other CRS systems from competing for contracts with travel agents. In its initiating order the Department correctly pointed out that "CRS market power, possible abuses of such power, and the effectiveness of existing CRS rules in curbing any abuses have important implications for airline competition."

At the time DOT decided to begin its investigatory process, Secretary Dole stated that the goal was to complete the study six months after the order of investigation was issued. This would have resulted in completion of the study by August 1987.

I consider it critically important to the continued success of airline deregulation that the large carriers which dominate the CRS market not gain unfair competitive advantages through their ability to impose significant costs on their airline competitors. Similarly, excessive liquidated damages should not stand in the way of competition among CRS vendors.

Our concerns over the inhibiting effects of CRS practices on airline competition has become even greater with the recent wave of airline mergers and the virtual disappearance of the small post-deregulation carriers. With the number of airline competitors reduced, we must take every step possible to ensure that there are no barriers to full competition between the remaining carriers.

I believe that the Department has now had ample time to analyze the information that was obtained from CRS vendors. Completion of the analysis and issuance of the Department's recommendations should be completed by March 15 so that Congress will have an opportunity to act on the Department's recommendations before the conclusion of the 100th Congress next fall.

Thank you for your cooperation.

Sincerely,

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

February 29, 1988

The Honorable Norman Y. Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works and Transportation
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter regarding increases in computer reservation systems (CRSs) fees and your letter requesting that the Department finish its report on the CRS industry by March 15.

As you stated, the Department of Transportation is evaluating the impact of the vendors' booking fees on the profitability of their CRSs. We had established the end of February as a target date for the completion of the study. However, in view of the complex issues involved, some additional time may be needed. Until all the facts are before us, it would be inappropriate for the Department to ask the vendors to roll back their recent booking fee increases.

I hope this information is helpful.

Sincerely,

Jim

Jim Burnley

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Committee on Public Works and Transportation
One Hundredth Congress
U.S. House of Representatives
Room 2165, Rayburn House Office Building
Washington, DC 20515
TELEPHONE: AREA CODE 202, 225-4472

May 11, 1988

Honorable James Burnley IV
Secretary of Transportation
Washington, D.C. 20590

Dear Jim:

When the Committee considers legislation to make FAA independent of the Department of Transportation, one important issue will be whether the requirement that FAA coordinate rulemaking and other policy decisions with the Office of the Secretary leads to unnecessary delays in reaching final decisions. Of course, the best evidence on this question will come from an examination of cases involving DOT and FAA coordination. But I think that it will also be relevant to review cases in which the Office of the Secretary deals with important aviation issues which are solely within its jurisdiction. If DOT cannot be efficient when it is the only agency involved, it is even less likely to be so when it must coordinate with another agency.

In this regard, I want to express again my deep concern with the delays in the issuance of the Department's study on airline computer reservations systems. As I have previously explained in detail, we consider this study to be of critical importance to the continuation of vigorous and effective competition between airlines. The study was started at our request in October 1986 and the original target date for completion was August 1987. In February 1988 I wrote to you emphasizing the importance of completing the study by March 15 so that the Congress would have an opportunity to act on the Department's recommendations before the conclusion of the 100th Congress next fall. To date, the study has not been issued.

The continuing delay in completing and issuing this study raises questions about whether the Department is assigning a high enough priority to a study raising such basic questions of aviation policy and whether the Department has the capability of dealing with important aviation issues on a timely basis. I expect to explore these questions at our hearings on FAA independence.

Sincerely,

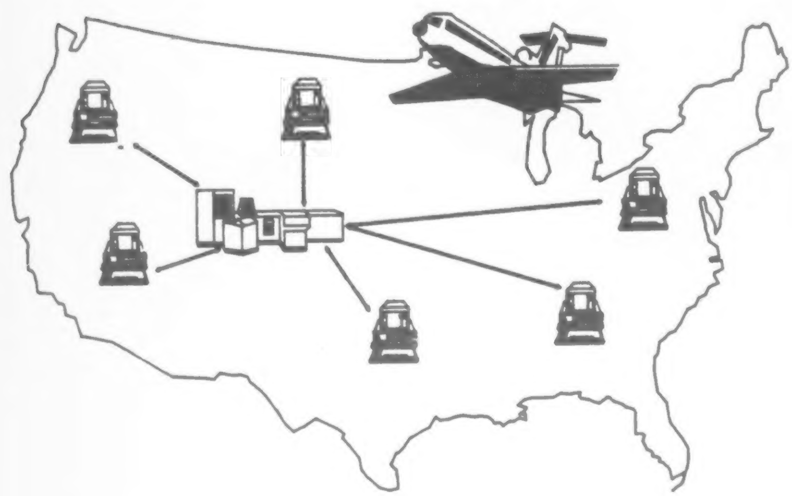
NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

DOT-P-37-88-2

U.S. Department of Transportation
Office of the Secretary of Transportation

Study Of Airline Computer Reservation Systems

MAY 1988



DOT-P-37-88-2

U.S. Department of
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Office of the Secretary
of Transportation

Study Of Airline Computer Reservation Systems

MAY 1988

Office of Economics
Office of the Assistant Secretary
for Policy and International Affairs

Transportation Systems Center
Research and Special Programs Administration

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I. EXECUTIVE SUMMARY

Airline-owned computer reservation systems (CRSs) play an important role in the air travel industry. Travel agents are able to use the information provided by these systems to advise customers about flights and fares, make reservations, write tickets, and issue boarding passes.

Two factors are primarily responsible for the increasing role of CRSs in the air travel industry. First, airline deregulation has prompted a proliferation of fare and service offerings. Computers are the most efficient way this vast amount of rapidly changing information can be made available to travel agents and the traveling public. Second, computer technology has continued to develop at a rapid rate, thereby increasing the capability of computers to store, process, update, and retrieve the large amounts of data contained in CRSs quickly and efficiently.

The CRS industry in the United States is composed of five major systems. American Airlines owns the SABRE system; the Covia Corporation, a subsidiary of the Allegis Corporation, which also owns United Airlines, markets APOLLO[1]; SYSTEMONE Holdings, a subsidiary of the Texas Air Corporation, which owns Eastern Air Lines and Continental Airlines, owns SYSTEMONE (formerly SODA); the PARS Marketing Corporation, which is owned by Trans World Airlines and Northwest Airlines, owns and markets PARS; and Delta Air Lines owns the DATAS II system.

The CRS vendors participate in two basic markets. In one market, the vendors provide reservation services for the airlines, hotels, car rental companies, and other firms that participate in their CRSs. Airline and non-airline participants agree to pay a fixed fee for each reservation booked. In the other market, the vendors provide equipment, training, and support services to travel agents and other subscribers, for which vendors charge monthly or annual fees. Contracts between vendors and subscribers and between vendors and participating airlines specify these services, the fees charged, and the terms governing vendors' relationships with participants and subscribers.

Since the early 1980s, public policy makers have been aware that CRSs and their vendors' business practices may influence the structure and performance of the airline industry. Chapter II reviews previous studies on the CRS industry, which concluded that the vendors exercised market power, and that they used this power to affect airline competition adversely. For example, it is generally believed that flights ranked closer to the top of the CRS display are suggested to consumers more often by travel agents and selected by consumers more frequently than lower-ranked flights. Since vendor airlines ranked their own flights higher on these displays, they gained a competitive advantage over rival air carriers. Biased screen displays and other allegedly anticompetitive practices resulted in the Civil Aeronautics Board (CAB) issuing rules in 1984 to govern airline-owned CRSs.

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[1] The Allegis Corporation recently announced its plan to sell 50 percent of APOLLO to USAir, British Airways, Swissair, KLM, and Alitalia.

Despite the issuance of the CRS rules, controversy about the effect of CRSs on airline competition has not abated. A major point of contention is the level of booking fees -- fees that are paid by airlines to the vendors each time a travel agent uses a CRS to book a reservation. Non-vendor airlines argue that these fees are excessive, while the vendors respond that the fees are reasonable and below the cost a participating airline would incur to provide similar services internally. Given the complexity and arbitrary nature of apportioning various CRS-related costs, a 1985 Department of Justice (DOJ) study was unable to conclude whether the booking fees charged by the vendors were above competitive levels. The 1985 DOJ report did find that the vendors still possessed market power, although they were no longer able to exercise this power through display bias.

A 1986 study prepared by the General Accounting office (GAO) called upon the Department of Transportation (DOT) to study the extent to which the CRS vendors obtain incremental revenues and whether booking fees charged by vendors were above competitive levels. A major objective of this study is to estimate vendor revenues, costs, and the financial benefits of CRS ownership in order to shed light on the reasonableness of their booking fees.

In response to the concerns raised by several members of Congress and various parties in the aviation community, the DOT issued an Information Directive (Order 87-2-1) on February 2, 1987, requiring the CRS vendors to provide the Department with information, data, and analyses bearing on their CRS-related costs and revenues, incremental revenues, market shares, and liquidated damages clauses in their subscriber contracts. This study is based largely on that information.

Chapter III discusses the structure of the CRS industry. During 1986, American Airlines' SABRE was the largest vendor, with 35.1 percent of travel agency locations (42.9 percent of air travel revenues booked through a CRS); Allegis's APOLLO had 26.4 percent of agency locations (32.4 percent of industry revenues); Texas Air's SYSTEMONE had 17.3 percent of agency locations (9.6 percent of industry revenues); TWA/Northwest's PARS had almost 13 percent of agency locations (10.4 percent of industry revenues); and Delta's DATAS II had eight percent of agency locations (and 4.9 percent of industry revenues). In 1986, approximately 94 percent of all travel agencies subscribed to only one CRS. Eighty percent of all travel agency locations operated fewer than six CRS terminals. SABRE and APOLLO agencies were, on average, larger than agencies that used other reservation systems.

The vendors incur substantial expenses to convert agents from other systems or to ensure that subscribers continue to use their systems. In the last few years, the smaller vendors -- particularly SYSTEMONE and DATAS II -- have devoted considerable resources to automating previously non-automated agencies and to converting agencies that use another vendor's CRS. Of the

24,693 agency locations at the end of 1986, 8,022 had renewed their contracts during the year, 3,978 were newly automated during the year, and 1,107 had converted from the use of one CRS to another.

Chapter III also discusses the nature of entry barriers in the CRS industry. While the financial commitment necessary to enter the CRS industry is not so large as to preclude entry by itself, the substantial sunk costs that would have to be incurred to develop a competitive CRS, the economies of scale and scope that the largest vendors appear to enjoy, and the time and expense it would take to acquire a critical mass of subscribers reduce the likelihood of entry into the CRS industry. This is particularly true for non-airline potential entrants. The fact that CRSs evolved from airline internal reservation systems and the benefits that airlines derive from a CRS make it unlikely that a non-airline will attempt to enter the CRS market in the future.

Chapter IV presents our estimates of the financial benefits an air carrier receives from owning a CRS. Two types of measures of these financial benefits are developed. The first is the economic rate of return, which is the most accurate method for evaluating these benefits. The economic rate of return is defined as the discount rate at which the present value of the sequence of future returns generated by an investment equals the outlays entailed in making the investment. The second measure is the traditional accounting return on investment, which suffers from serious conceptual and technical limitations but which still conveys important financial information once appropriate adjustments are made to the data.

The financial benefits received by the airline owner of a CRS consist of four components: (1) the booking fees it charges airline and non-airline participants; (2) the fees it receives from travel agents and others who subscribe to its CRS; (3) the value of reservation services the CRS and its network of subscribers provide to its owner's airline operations; and (4) any increase in the earnings of the airline's passenger-carrying operations that result from travel agents' use of its CRS.

A major financial benefit a vendor airline receives from its investment in a CRS is the increase in the number of passengers that travel on its flights as a result of travel agents' use of its reservation system. In fact, CRSs were developed to enhance the financial viability of their airline owners' passenger-carrying operations. Some CRS systems originally did so by presenting travel agents with rankings of flight alternatives that displayed the owner airline's flights more prominently. By biasing the presentation of information on flight alternatives on the computer displays used by CRS-equipped travel agents, it is commonly believed that vendor airlines were able to divert passengers to their own flights from those operated by competitors.

The CAB sought to eliminate carrier-specific display bias with its 1984 CRS rules, and the vendors' responses to the Department's CRS Information Directive indicate that bias has been eliminated. Accordingly, our estimates of the financial benefits accruing to vendor airlines from their ownership of CRSs include the estimated value of increased passenger volumes from display bias only through November 1984, when the CAB's rules became effective.

Travel agents may also have been induced to book more passengers on a CRS-owning airline's flights as a result of that airline's maintenance of supportive business relations with its network of subscribers. This "halo effect" may persist even in the post-rule environment. A travel agent may choose to affiliate with a particular CRS vendor for a variety of reasons: one vendor airline may be preferred by many of the agent's customers (perhaps because of its presence in the market where the agent is located), the agent may judge a particular system to have superior performance, or the financial benefits offered to the agent to affiliate with a system may be greater.

The increase in airline ticket revenues a CRS-owning airline receives from increased passenger bookings on its flights by travel agents is referred to as "incremental revenues." Incremental revenues are the added revenues an airline receives from increases in passenger volumes on its flights due to both display bias (during the pre-rule period) and whatever halo effect is created by its relations with travel agents who subscribe to its CRS.

Estimating the value of this component of an airline's return on its CRS investment also requires estimating the fraction of any incremental revenues that is translated into higher airline earnings. If these additional passenger volumes serve to raise load factors on existing flights, and can thus be accommodated at little additional cost, then a substantial fraction of any incremental revenues may be reflected in higher airline earnings. However, if these additional passenger volumes are sufficiently large or distributed over airlines' route networks and schedules so as to require additional flights to accommodate them, the contribution of incremental revenues to airline operating profits may be much more modest.

The most common estimate used by the vendor airlines is that 80 percent of these incremental revenues results in increased operating earnings. This figure implies that airline managers believed that any additional airline traffic generated by automating travel agents with its CRS could be accommodated with existing airline capacity, and thus at little additional cost. When CRSs were first developed, this assumption may have been realistic. However, the large numbers of passengers that vendors later estimated were being diverted to their airline owners' flight by travel agents equipped with their CRSs would almost certainly have affected their aircraft investment decisions and thus the cost of transporting these incremental passengers. If so, the 80 percent figure may overestimate the financial benefit to an airline from the diversion of large numbers of passengers from competitors' flights to its own flights through the CRS. Thus, while we employ vendors' own estimates of the fraction of these increased passenger revenues that are reflected in increased airline operating profit, we also examine the sensitivity of the resulting measures of CRS financial benefits from this source to more conservative estimates of this fraction.

In order to produce estimates of incremental revenues accruing to CRS-owning airlines that are both conservative and consistent among vendors, we use their internal analyses to measure incremental revenues assuming that agents equipped with each vendors' CRS would otherwise remain non-automated. This approach produces smaller estimates of incremental revenues than would the assumption that agents would have been automated by a rival CRS vendor if they had not chosen to affiliate with the vendor in question. Under the latter assumption, the estimated size of incremental revenues generated by any one CRS would be larger, since it would include airline passenger revenues that would otherwise be lost to a rival vendor airline. Nevertheless, when most of the internal studies of incremental revenues reported by vendors were conducted, it was apparently assumed that if a vendor did not automate a particular agent, that agent would continue to operate without any CRS.

Both the estimated financial contribution by each CRS to its airline owner and the estimated returns on that airline's CRS investments, which incorporate this contribution, reflect the hypothetical existence of only this pro-host CRS influence. Thus, what these incremental revenues measure is the advantage a carrier derives by reason of the halo effect flowing from its ownership of a CRS, in comparison to its competitive position if the agents it has automated were not automated. Where multiple airline-owned CRSs operate, each vendor's contribution is offset in varying degrees by whatever bias and halo-generated influences on booking patterns are exercised by travel agents equipped with competing systems. Thus, the sum of each CRS's separate contributions to the earnings of its owner airline cannot be interpreted as an increase in the domestic airline industry's total earnings stemming from the existence of five airline-owned CRSs. Similarly, it is improper to interpret the reported cash flows for the five systems as an estimate of the rate of return on investment for the "CRS industry," since their simultaneous pro-host influences on their respective subscribers' booking patterns would in varying degrees offset one another. Finally, these estimates of the financial benefits of CRS ownership should not be used to determine the value of any particular system to potential non-airline owners if vendors were required to divest their systems, since a non-airline owner could derive no incremental airline passenger revenues from its ownership of a CRS.

In Chapter V, we assess the relationship of the fees charged to the costs incurred by the vendors for services provided to subscribers and participating airlines. Participating airlines' ability to influence the level of bookings fees charged by the vendors appears to be limited because non-CRS owning airlines have no mechanism to influence their passengers to patronize travel agents equipped with CRSs that charge lower booking fees, or to persuade travel agents to equip themselves with such systems. Thus, while airlines (and ultimately consumers) pay the booking fees imposed by vendors, travel agents choose which CRS they will use to generate passenger bookings on those airline flights.

Based on our estimates of the economic costs of providing reservation and subscriber services under alternative allocations of joint costs, it appears the vendors recover approximately 80 to 85 percent of subscriber-related costs from agents. The largest vendors, however, charge participating airlines booking fees that appear to exceed their costs for providing reservation services. Under the most likely allocation of joint costs, SABRE, APOLLO, and SYSTEMONE appear to charge participating air carriers roughly twice their average unit cost per passenger segment booked.

Chapter V also presents information on how the vendors' market shares based on air travel revenues booked on their systems in major metropolitan markets changed between 1983 and 1986. During this period, SYSTEMONE increased its revenue market share at 20 of the 26 large hubs and 25 of 31 medium hubs; DATAS II increased its share at 20 large hubs and 19 medium hubs; and APOLLO increased its share at 19 large hubs and 17 medium hubs. In contrast, PARS lost market share at 15 large hubs and 14 medium hubs, and SABRE lost market share at 21 large hubs and 17 medium hubs. In fact, SABRE's market share declined by more than ten percentage points at each of ten large hubs.

To assess the accuracy of the vendors' estimates of the halo effect, in Chapter V we develop independent estimates of the size of the halo effect for each vendor. Using 1986 data on agency booking patterns, each vendor airline's share of scheduled aircraft departures in 57 major metropolitan markets, and information on whether travel agents in those markets receive override commissions from vendor airlines, we estimate the size of the halo effect. We believe that our interpretation of the halo effect -- the increase in a vendor airline's revenue share of passenger bookings in a market above its share of departures after adjusting for the influence of override commissions -- is appropriate. Based on our estimates, it appears that the halo effect continues to exert a large influence on travel agency booking patterns. Indeed, our results indicate that the halo effect is larger than some vendors have estimated it to be.

In Chapter VI, we review the nature of the contractual relationship between vendors and subscribers, focusing particularly on the liquidated damages clauses in the vendors' standard contracts. We then describe the liquidated damages, rollover, and minimum-use clauses that typically appear in vendor-subscriber contracts and review the developments that have taken place in this area since the CRS rules went into effect. Next, we review the validity of the liquidated damages clause under state contract law. We then review the effect of these clauses on CRS competition.

Viewed strictly as a matter of contract law, the major vendors appear to have a plausible argument for the enforceability of their standard contracts. However, it also appears that the most controversial provisions of these contracts do make it more costly for a vendor to convert agents to its system. The question of whether these clauses create barriers to expansion by other vendors sufficient to make their use an unfair method of competition is debatable. Even more uncertain is whether and how action to loosen contractual restrictions on subscriber mobility among systems would influence competition in the airline industry.

In Chapter VII, we describe emerging technological developments that could influence the role of CRSs and travel agents in the air travel industry. Three technologies are examined -- automated ticket machines, personal computers, and commercial information networks. Although technology currently exists to facilitate major changes in the way travelers make airline reservations and obtain necessary travel documents, as with all innovation, more is required than simply the availability of new technology. The marketing innovation with the greatest potential for changing the way travelers obtain flight information and make travel arrangements -- automated ticket machines -- is not being promoted aggressively by air carriers. With its potential for bypassing travel agents, automatic ticketing has been opposed by travel agents. Because air carriers have been unwilling to risk alienating agents by promoting this technology, the number of automatic ticketing machines in operation has remained small. However, it appears likely, although far from certain, that at least some of these technologies will change the roles played by airline-owned CRSs or travel agents themselves in the sale and distribution of airline services over the next five to ten years.

Appendix I presents the rules that govern the CRS industry. Appendix II describes the computer algorithms currently used by the vendors to construct their schedule displays. Appendix III describes the internal studies of CRS bias and halo revenues provided by the CRS vendors and explains how we used these analyses to estimate the amount of traffic that they capture because of display bias and the halo effect. Appendix IV presents information on the vendors' market shares based on air travel revenues booked by automated travel agents at 26 large and 31 medium hub cities for 1983 and 1986.

Finally, during the information gathering phase of this study, comments were received from the European Civil Aviation Conference (ECAC). These comments will not be discussed in this report, which focuses on the impact of CRSs on domestic air transportation, but will be addressed through direct communication with ECAC.

II. PREVIOUS STUDIES OF THE COMPUTER RESERVATION SYSTEMS INDUSTRY

A. Introduction

Since the early 1980s, public policy makers have been aware that airline-owned CRSs have the potential to influence competition in the airline industry. This report builds upon past efforts to understand the role of CRSs in the air travel industry and their influence on airline competition. This chapter is not intended to provide the reader with an in-depth review of past studies on the CRS industry. Its goal, rather, is to acquaint the reader with the principal findings of earlier studies and to describe the federal regulations that now govern airline-owned CRSs.

A computer reservation system consists of a periodically updated central database that is accessed by subscribers (primarily travel agents) through computer terminals.[1] CRSs provide subscribers with up-to-date information on airline fares and services and allow them to make reservations and issue tickets.[2] Travel agents generally lease the necessary computer terminal and ticketing equipment from a vendor, thereby establishing a contractual relationship between the vendor and the subscriber. There is also a contractual relationship between the vendor and each airline that chooses to have information about its services and fares displayed in that vendor's CRS.

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[1] The major component of a CRS is one or more mainframe computers that process messages received from travel agents, city ticket offices, and the airlines' internal reservation personnel. These messages are relayed to the central computer. By prompting a computer terminal keyboard, the user is able to review up-to-date information on air fares, rules, schedules, seat availability, and certain non-airline services, such as rental cars or hotel rooms.

[2] Beginning in the late 1960s, several airlines began investing substantial amounts of money to acquire the computer hardware and to develop the software that would upgrade their internal reservation systems and allow them to manage larger and more complex data bases. These systems soon became an indispensable management tool -- essential for operating the airline and for acquiring detailed information about the airline marketplace. It was also becoming apparent that travel agents could benefit significantly from greater automation; accordingly, the American Society of Travel Agents began to take an active role in promoting the development the development and diffusion of computer technology for the travel industry. (footnote continued on next page)

The CRS industry is composed of five major systems -- SABRE, APOLLO, PARS, SYSTEMONE, and DATAS II. These systems are owned by several large air carriers -- American, United, TWA/Northwest, Continental/Eastern, and Delta.[3] Two factors are primarily responsible for the increasing role of CRSs in the air travel industry. First, airline deregulation brought forth a proliferation of fare and service offerings. Computers are really the only way this vast amount of rapidly changing information can be made available in a cost-effective manner to agents and the traveling public. Second, rapidly developing computer technology has increased the capability of computers to store, process, update, and retrieve large amounts of data quickly and efficiently.

(footnote 2 continued)

Between 1967 and 1976, there were several attempts to develop and market a neutral, industry-wide CRS. However, because of insufficient participation by some airlines, a lack of funding, and the concerns that were raised by the DOJ and the CAB over potential anticompetitive behavior, an industry system was never developed. In 1967, for example, the Donnelly Official Airline Reservation System ("DOARS") was established; it failed because of a lack of financial support. In 1969, the Automated Travel Agency Reservation System ("ATARS") was formed by several carriers, but was subsequently challenged by DOJ because the project was structured in such a way as to raise antitrust concerns. (The ATARS project also gave rise to a CAB investigation on the competitive implications of an industry-wide CRS.) The Joint Industry Computerized Reservation System (JICRS) was the third attempt to develop an industry system. After United Airlines and American Airlines announced their intentions to market their proprietary systems, this project also failed. Finally, in 1979, the CAB approved an agreement among 12 airlines, the American Society of Travel Agents, and American Express to develop the multi-access reservation system (MAARS). Because the CAB refused to grant the parties antitrust immunity, however, the group subsequently disbanded.

[3] Several CRSs operate under corporate subsidiaries. SYSTEMONE Holdings, a subsidiary of the Texas Air Corporation, which includes Continental Airlines and Eastern Air Lines, markets SYSTEMONE (or SODA). The Covia Corporation, which markets APOLLO, is a wholly owned subsidiary of the Allegis Corporation, (formerly UAL, Inc.). However, Allegis has announced plans to sell APOLLO to a joint venture, Covia Partnership, in which Covia Corporation will retain a 50 percent interest. USAir, Swiss Air, KLM Royal Airlines, and Alitalia will divide the other 50 percent. PARS is marketed by PARS Travel Information Systems, which operates as a separate corporate entity and is owned by Trans World Airlines and Northwest Airlines. The largest CRS vendor, SABRE, is controlled by American Airlines. DATAS II is owned by Delta Air Lines.

Travel agents value CRSs because they increase their productivity and lower the costs of doing business. The benefits of operating CRSs are overwhelming. It is generally believed that more than 95 percent of all agents are now automated.

The following section reviews the CAB's 1983 Advance Notice of Proposed Rulemaking (ANPRM). This ANPRM sought comments as to whether regulation of the CRS industry was necessary to preserve competition among air carriers. The next section reviews the Department of Justice's (DOJ's) response to this rulemaking proceeding. Following this, the rules promulgated by the CAB to govern CRS operations and vendor practices are reviewed. With the abolition of the CAB, the Department of Transportation (DOT) is now responsible for the enforcement of these rules. Next, we review a December 1985 study prepared by the DOJ on the CRS industry. Finally, we review a May 1986 report prepared by the General Accounting Office (GAO) on the CRS industry, as well as the events that led up to the DOT undertaking this study.

B. The CAB's Proposal to Conduct An Informal Rulemaking

On September 9, 1983, the CAB issued an ANPRM requesting comments on the need for federal action and the nature of appropriate remedial rules to deal with the alleged competitive problems arising out of the CRS vendors' business practices.[4] The ANPRM discussed four ways in which CRSs appeared to influence airline competition: (1) carrier identity was one factor used to rank flight information on computer displays; (2) the terms, conditions, and fees imposed by the vendors on participating airlines were alleged to be unreasonable and discriminatory; (3) the vendors allegedly delayed loading into their CRSs critical information regarding their competitors' flights in order to gain an unfair competitive advantage; and (4) the vendors' prior access to competitors' marketing information provided them with an unfair competitive advantage.

Carrier identity was one of several criteria used by vendor airlines to rank their flights on computer displays, and CRS-owning airlines accorded their own flights a higher ranking on their CRSs. Since flights listed closer to the top of the first screen are believed to be suggested more frequently by travel agents and chosen more frequently by travelers, preferential ranking can provide a vendor airline with a competitive advantage. Such systematic display preference ("bias") interferes with the efficient functioning of air travel markets. If a competing airline whose flights are subject to such bias does nothing, it will lose business to the vendor airline. If it chooses to counteract this misinformation, it must expend additional resources (e.g., through advertising or the payment of incentive commissions to travel agents), raising its costs and thereby making it less competitive.

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[4] EDR-466 (September 9, 1983), 48 Fed. Reg. 41171 (September 14, 1983).

The major vendors did not deny that their display screens were biased; instead, they argued that display bias was appropriate given the large financial risks they assumed to develop these systems. These vendors also alleged that display bias could be overcome relatively easily (e.g., by non-vendor airlines paying additional commissions to travel agents). In addition, most vendors argued that bias was relatively minor -- that is, it did not significantly influence the display position of flights and could be easily overcome by agents.

The terms and conditions the CRS vendors exacted from other airlines for access to their systems were also a matter of concern. For example, the fees imposed by the vendors for each flight segment booked varied, often significantly, among air carriers serving the same markets. Without offsetting cost differences, different prices for similar services are usually viewed as discriminatory and are indicative of market power. It was, moreover, alleged that vendors sometimes denied co-host status (i.e., a contractual arrangement to give another air carrier enhanced display or other services) to airline rivals because they competed with vendor airlines in important air travel markets.

It was also alleged that the vendors sometimes delayed loading information about changes in competitors' fares and schedules into their CRSs. Consumers were thereby denied up-to-date information about alternative flights, fares, and services. The CAB was also concerned about the vendors' ability to use marketing information from scheduled bookings to achieve an unfair competitive advantage.

The structure of the CRS industry, according to the CAB, served to preserve the vendors' market power. At the national level, the CRS industry was concentrated, while concentration was even higher in important regional markets. Entry barriers were also judged to be substantial: the cost of developing a reservation system de novo was great; moreover, the importance of incremental revenues (i.e., additional airline revenues that result because an agent adopts the vendor airline's CRS in lieu of another system) earned by the CRS vendors, and the fact that most travel agents were already automated and had signed exclusive, long-term contracts with established vendors, made it difficult for potential entrants to develop the necessary networks of travel agent subscribers. In its ANPRM, the CAB sought information on the CRS industry and suggestions as to how the competitive and consumer-related issues it had identified could be resolved.

C. DOJ's Comments in Response to the ANPRM

In response to the CAB's ANPRM, the DOJ provided a comprehensive overview of the CRS industry and the competitive consequences of vendor practices.[5] The DOJ's analysis focused largely on the business practices of the two major CRS vendors, SABRE and APOLLO. The DOJ concluded that CRS vendors had market power, that certain vendor business practices had adversely affected competition in the airline industry, and that regulations were necessary to govern these systems in order to protect airline competition.

From its analysis of the CRS industry's structure, the DOJ found a high level of market concentration; indeed, the four largest vendors collectively accounted for 84 percent of domestic air travel revenues booked by travel agents.[6] In its analysis of important air travel markets, the DOJ found that one or two reservation systems were often dominant: SABRE had a market share of 40 percent or more in 17 large urban markets, APOLLO had a similar market share in 10 markets, and PARS was the dominant vendor in four major markets. The DOJ also found that one or two CRSs dominated many of the 233 smaller metropolitan areas it examined. According to the DOJ:

> The regional strength of a CRS enables that CRS to exercise market power over carriers that seek to serve passengers in that region. In many urban areas, competition among CRSs is not likely to protect airlines from the exercise of market power. A carrier with a substantial number of flights serving a major area has little choice but to purchase access to each CRS to which a major share of the travel agents in a region subscribe. If it is not listed in any such CRS, a sizeable block of agents in the area simply will not book flights on the carrier. No carrier can afford to give up the chance to sell tickets to the customers of

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[5] Comments and Proposed Rules of the Department of Justice Before the Civil Aeronautics Board, November 17, 1983, and Reply Comments of the Department of Justice, December 16, 1983.

[6] At the time DOJ prepared its analysis, there were six CRS vendors. Using data for the last two quarters of 1982 and the first two quarters of 1983, DOJ estimated that 43 percent of domestic air travel revenues generated by travel agents was booked on SABRE, 27 percent was booked on APOLLO, 10 percent was booked on PARS, four percent was booked on SODA (now SYSTEMONE), two percent was on DATAS II, and two percent was booked on Tymshares' MARS PLUS. Eastern has since acquired the MARS PLUS contracts. At that time, an estimated 12 percent of domestic air travel revenues was booked by non-automated agents.

> the agents booking a large portion of the revenues in a region it serves.[7]

Like the CAB, the DOJ concluded that significant economic barriers discouraged new entry into the CRS industry. For instance, the ability of a vendor carrier to earn substantial incremental revenues from the placement of its CRS with travel agents made it unlikely that a non-airline CRS vendor could provide these services at a profit:

> Incremental revenue opportunities enable carriers who market CRS systems to price their CRSs to agents below costs and still profit from offering their CRSs. American and United can offset insufficient revenue from agents by incremental revenues from diverted passengers and thus earn an immediate return on their investment. A new or expanding CRS vendor trying to convince travel agents to switch away from SABRE and APOLLO must offer prices at least competitive with SABRE and APOLLO. If the charges by SABRE and APOLLO do not cover the systems' costs, however, it will be difficult for a new entrant to cover its costs solely from revenue earned by charging the agents.[8]

Also, the exclusivity and duration of CRS contracts with travel agents made it difficult for other vendors -- either potential entrants or existing vendors -- to sign up subscribers. Understandably, travel agents were also reluctant to incur the substantial start-up costs of switching CRSs.

In its Comments, the DOJ also showed how the vendors could disadvantage competitors -- by biasing flight displays, establishing fees that were above competitive levels, and manipulating information about a competitor's flights and fares. The DOJ's Comments provided evidence that the ranking of flights on a computer display had a direct effect on sales for air transportation.[9] The vendor airlines, moreover, had the technical capability to bias flight information on a market-by-market basis. Therefore, a vendor airline which biased the ranking of flights on the screen in its favor was able to divert passengers away from its competitors, thus capturing substantial incremental revenues. The DOJ also found that excessive booking fees raised competitors' costs; and the manipulation (or suppression) of information on flights, fares, and services placed rivals at a competitive disadvantage. Overall, the most important effect of these examples of market power was to deter potential airline rivals from competing against vendor airlines in certain markets.

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[7] DOJ Comments, 44.

[8] DOJ Comments, 50.

[9] According to DOJ: "In a December 1981 analysis, American Airlines determined that 53 1/2 percent of all SABRE sales come from the first line of the first screen displayed, and almost 92 percent of all sales come from the first screen." DOJ Comments, 81.

In its Comments, the DOJ provided detailed information on how United and American exercised market power through the provision of CRS services. For instance, for a period of several months in late 1981 and early 1982, American deleted information on its SABRE system about certain Continental Airlines "supersaver" fares; Frontier Airlines, a major competitor of United, was denied co-host status in the APOLLO system, which resulted in its flights receiving an inferior display ranking; and American listed New York Air's flight far down on the SABRE display after that carrier began serving the New York-Detroit market in competition with American.

With regard to the access fees charged by the vendors, the DOJ concluded that "... prices were neither determined by costs nor significantly constrained by competition from other CRSs."[10] The DOJ also found that the major CRS vendors engaged in discriminatory pricing: air carriers that competed against a vendor airline were sometimes charged higher fees to have information about their services displayed in that vendor's CRS.

The DOJ recommended that the CAB adopt rules to limit display bias and rules to assure that all actual and potential CRS vendors have full access to all other vendors' flight information. The DOJ recommended against the CAB's adoption of a pricing rule, arguing that such a rule could undermine the CAB's efforts to eliminate display bias.[11]

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[10] DOJ Comments, 131.

[11] The DOJ was concerned that the CAB's proposed pricing rule -- unlimited but nondiscriminatory fees -- would encourage vendors to raise their access fees significantly. If a carrier chose not to pay these higher fees, under the CAB's proposed rules, vendors were free to impose display bias against that carrier.

D. The CAB's Rules Governing CRSs

Shortly before the CAB's remaining regulatory functions were transferred to the DOT, it promulgated rules to govern the operation of airline-owned CRSs offered to travel agents.[12] These rules are listed in Appendix I. In adopting the rules, the CAB sought to alleviate unfair competitive practices, while avoiding any unnecessary intrusion on the vendors' freedom to continue to improve their systems and profit from their investments. The major provisions of the rules are:

- The criteria by which flights are ranked in primary displays are to be constructed on the basis of objective, unbiased, and published criteria.[13]
- In ranking flights, the vendors cannot use any factors relating to carrier identity.
- Participation in the various CRSs must be open to all carriers.
- A minimum of nine alternative connecting points must be considered upon participants' request in constructing itineraries, and these connecting points must be selected by objective criteria.

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[12] 14 CFR Part 255, 49 Fed. Reg. 32540, August 15, 1984. The final rules became effective on November 14, 1984. The CAB had adopted the rules under its authority under section 411 of the Federal Aviation Act of 1958, 49 U.S.C. 1381. Section 411 granted the CAB (now DOT) the authority to prohibit unfair or deceptive methods of competition. United Airlines sought review of the CAB's rules on the grounds that section 411 did not authorize the CAB to regulate unfair and deceptive methods of competition, that the CAB could not adopt CRS rules without first holding a formal hearing, and that the CAB had no rational basis for regulating such CRS vendor practices as bias, discriminatory fees, and discrimination against carriers sharing the same two-letter designator code. Other parties expressed concerns over other aspects of the CAB's rules. On July 31, 1985, the Seventh Circuit Court of Appeals (in United Airlines, et al. vs. CAB, 766 F.2d 1107 (7th Cir. 1985)) unanimously affirmed the CAB's rules.

[13] Since the CAB was concerned that travel agents have access to unbiased information, the rules applied only to primary displays. Additional displays, such as the vendors' internal reservation systems, could remain biased. The DOJ argued that by limiting the rule to primary displays, the CAB created an incentive for the vendors to encourage agents to use alternative displays, which is what occurred. Shortly after the rules went into effect, the major vendors introduced a "switch" on their CRSs that made it easy for agents to access a biased secondary screen. The DOT resolved the secondary screen problem by voluntary agreement with each vendor, not by a new rule.

- No vendor shall discriminate among participating carriers with regard to the fees charged for participating in its system.[14] (Differing fees to participating carriers for the same or similar services are presumed to be discriminatory.)
- No subscriber contract will have a term in excess of five years.
- No vendor shall require the exclusive use of its system.
- No vendor shall require a travel agent to use its system as a condition for the receipt of a commission related to the sale of its air transportation services.
- In the event a vendor offers service enhancement to any participating carrier, it must offer similar enhancements on non-discriminatory terms to all participating carriers.[15]
- Each vendor shall make available to all participating carriers on a non-discriminatory basis all marketing, booking, and sales data that it elects to generate from its system.

E. 1985 DOJ Report on the CRS Industry

In 1985, the DOJ again analyzed competitive practices in the airline-owned CRS industry to determine whether the CAB's rules were preventing the vendors from exercising market power.[16] The DOJ also reviewed options for addressing any continued anticompetitive behavior on the part of the vendors. The 1985 Report concluded that the vendors still possessed market power, although they were no longer able to exercise this power through systematic display bias. Given the complexity and arbitrary nature of apportioning various CRS-related costs, the DOJ was unable to determine whether the booking fees charged by the vendors were above competitive levels.[17]

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[14] For the reason mentioned in footnote 9, the DOJ opposed the CAB's uniform pricing rule. In addition, the CAB did not impose mandatory access to vendors' schedule and fare data as the DOJ suggested.

[15] The CAB declined to require vendors to offer enhancements that vendors themselves used. The CAB recognized that allowing vendors exclusive use of enhancements could increase the halo effect; however, the Board recognized that depriving vendors of this benefit could discourage innovation.

[16] U.S. Department of Justice, 1985 Report of the Department of Justice on the Airline Computer Reservation System Industry, Washington, D.C., December 20, 1985.

[17] After the rules went into effect, SABRE and APOLLO imposed access fees of $1.85 and $1.75, respectively, for each booking, a substantial increase for many participating air carriers, although a decrease for others.

The 1985 Report was completed approximately one year after the CAB's CRS rules became effective. During that period, the vendors' market shares had not changed significantly, and there had been no new entry into the CRS industry, although a joint venture had been formed to consider purchasing an established reservation system.[18] The DOJ concluded that certain service features (enhancements) now available on CRSs had probably reduced the vendors' market power, since certain features increased the substitutability of the various CRSs. For example, there had been the diffusion of direct access features in CRSs.[19]

After the rules went into effect, American, United, and TWA strengthened the liquidated damage clauses in their agency contracts. Liquidated damages provisions are perceived to increase the costs to an agent of switching CRSs. The DOJ did not, however, call for new regulations to govern these provisions:

> ... [T]he evidence to date does not justify any new regulation of such clauses. Developments may establish that buy-outs and the sign-up of new agents is sufficient to allow new entry and expansion or at least to provide a sufficient threat of new entry or expansion to deter an exercise of market power by incumbent CRSs. Moreover, new rules that attempt to deal with these clauses might impose substantial costs that we cannot safely estimate at this time. For example, the elimination of liquidated damages clauses may increase CRS fees and may increase the administrative costs of buy-outs because of uncertainty as to the appropriate level of damages to compensate the incumbent for the travel agent's termination of its membership in the CRS.[20]

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[18] A joint venture of 29 non-vendor domestic and foreign airlines was studying the feasibility of purchasing one of the smaller CRSs. The joint venture was christened "NIBS," the Neutral Industry Booking System. NIBS has not purchased an established CRS.

[19] Direct access is a function that allows a subscriber to access air carriers' internal reservation systems. Through direct access, subscribers are able to review the off-line carrier's seat inventory, fares, schedules, and other pertinent flight information. Under direct access, the booking is actually made on the vendor's system and the booking request is conveyed to the off-line carrier through a computer-to-computer link.

[20] DOJ Report, 26-27.

Nor did the DOJ endorse new rules to govern other aspects of the CRS industry. Given the difficulties of establishing "reasonable" prices and the adverse efficiency consequences that often result from detailed price regulation, the regulation of access fees was viewed as undesirable. The DOJ also argued "..that the costs of the various divestiture alternatives are very high, and the possibility of service disruption is great."[21]

F. 1986 GAO Report on the CRS Industry

In March 1985, United Airlines and American Airlines presented their estimates on the profitability of their respective CRSs before the Subcommittee on Aviation, Senate Committee on Commerce, Science, and Transportation. United estimated that for the period 1975 to 1987, it would earn an internal rate of return of five percent on its APOLLO system.[22] American estimated that SABRE would earn an internal rate of return of 18.8 percent between 1976 and 1990. American and United argued that such rates of return were consistent with what firms in other industries earned for investment projects of similar risk.

Shortly after these profitability estimates were presented, several non-vendor airlines commissioned a study to review American's and United's profitability estimates.[23] This study concluded that because they failed to account for incremental revenues and certain cost savings, American's and United's estimates were seriously understated. Based on an alternative methodology and different revenue and cost assumptions, the contractor study concluded that United's and American's internal rates of return were, respectively, 160.5 percent and 65.7 percent.[24]

In an effort to resolve these differences, Senator Kassebaum and Congressmen Mineta and Hammerschmidt requested that the GAO review the various CRS profitability analyses in order to assess the profitability and the competitiveness of the CRS industry.[25] In brief, the GAO

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[21] Report, 75.

[22] The internal rate of return is the discount factor that reduces to zero the net present value of the cash flows associated with an investment project.

[23] William J. Duffy, Analysis of American's and United's Statements Regarding the Profitability of SABRE and APOLLO, Simat, Helliesen, and Eichner, May 1985.

[24] The Duffy study also used net income to calculate the vendors' rate of return on their CRS-related investments. By contrast, the vendors based their profitability calculations on net cash flow, which is the accepted methodology for calculating an investment's profitability or rate of return.

> ... found that the CRSs are more profitable than estimated by United and American, primarily because their analyses did not include revenues from additional ticket sales due to their ownership of CRSs (called incremental revenues). However, a study sponsored by non-CRS-owning airlines probably overstates profits, and we believe the available data are insufficient for us to develop our own profitability estimate.[26]

The GAO called upon the DOT to study (1) the extent to which CRS vendors obtain incremental revenues, and (2) whether CRS booking fees are above competitive levels.

In a May 21, 1986, letter to former Secretary of Transportation Elizabeth Hanford Dole, Senator Kassebaum and Congressmen Mineta and Hammerschmidt requested that the Department study these issues. At the direction of Secretary Dole, Departmental staff met informally with interested parties during the summer of 1986 to discuss the feasibility of conducting the requested study. On October 9, 1986, Secretary Dole informed Senator Kassebaum and Congressmen Mineta and Hammerschmidt that the Department would study the state of competition in the CRS industry. On February 2, 1987, the DOT issued an Information Directive (Order 87-2-1) requiring the airline vendors of computer reservation services to provide the Department with information, data, and analyses bearing on their CRS costs and revenues, incremental revenues, market shares, and liquidated damages clauses in their subscriber contracts. This study is largely based upon the information provided to DOT by the CRS vendors.

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[25] United States General Accounting Office, Airline Competition: Impact of Computerized Reservation Systems, Washington, D.C., May 1986.

[26] GAO Report, 1-2.

III. THE COMPUTER RESERVATION SYSTEMS INDUSTRY: AN OVERVIEW

A. Introduction

This chapter describes the CRS industry. Section B presents information on the size of the industry and the vendors' relative market shares. Section C discusses the nature of barriers to entry into the CRS industry. Section D describes the most important service features of CRSs. Section E describes the relationship between CRS vendors and travel agents. (The contractual relationships between vendors and agents, especially the liquidated damages provisions in agency contracts, are discussed in Chapter VI.) Finally, Section F describes the commercial relationship between vendors and airlines that choose to have information about their flights displayed in a CRS.

B. The Structure of the CRS Industry

Market structure is a term that describes the environment within which firms conduct their business. An industry's structure is influenced by the number and relative sizes of the firms in the industry, the nature and extent of entry barriers into that industry, the industry's basic technological conditions, and the demand for the good or service being produced.

Table 3.1 presents information on the number of travel agencies using a CRS, domestic air transportation revenues booked through CRSs, terminals in operation, and passenger segments booked by CRS-equipped travel agents. In 1986, CRSs were being used at 24,693 U.S. travel agency locations. Travel agents booked $21.6 billion in domestic air transportation at these locations. (From the data provided to the Department by the CRS vendors, it was impossible to estimate the number of non-automated agencies, although it is generally believed that more than 95 percent of agencies are now automated.) SABRE is the largest CRS vendor; it was the primary vendor (i.e., the greatest number of bookings was made through a SABRE terminal) at 35 percent of all agency locations during 1986. Almost 43 percent of domestic air transportation revenues booked through a CRS was booked through SABRE, and almost 41 percent of terminals in operation were SABRE terminals. APOLLO was the second largest vendor, accounting for 26 percent of CRSs located at travel agencies, 32 percent of domestic air transportation revenues booked through a CRS, and 27 percent of all CRS terminals in operation.[1]

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[1] According to Travel Weekly (December 10, 1987), at the end of 1987, there were 34,684 agency locations operating 152,547 terminals. SABRE's market share of locations was 34 percent (36.9 percent of terminals and 39.2 percent of bookings), APOLLO had a 24.5 percent market share (27.5 percent of terminals and 25.8 percent of bookings), SYSTEMONE had an 18 percent market share (15.9 percent of terminals and 15 percent of bookings), PARS had 14.5 percent of locations (12.5 percent of terminals and 14.6 percent of bookings), and DATAS II had nine percent of locations (and 7.2 percent of terminals and 5.4 percent of bookings). To the best of our knowledge, Traffic Weekly solicited this information directly from the vendors.

TABLE 3.1

COMPUTER RESERVATION SYSTEMS: MARKET SHARE DATA
(INCLUDING SATELLITE TICKET PRINTERS)
CALENDAR YEAR 1986[1]

CRS Vendors	AGENCY LOCATIONS[2]		REVENUE ($000)		TERMINALS		SEGMENTS BOOKED (000)	
	Number	%	Amount	%	Total	%	Total	%
SABRE	8,677	35.1%	$ 9,280,784.9	42.9%	47,339	40.9%	126,358.8	41.3%
APOLLO	6,511	26.4%	7,017,262.9	32.4%	31,446	27.2%	100,612.9	32.9%
SYSTEMONE	4,271	17.3%	2,083,864.0	9.6%	16,820	14.5%	32,199.3	10.5%
DATAS II	2,045	8.3%	1,056,796.4	4.9%	7,856	6.8%	15,462.0	5.1%
PARS	3,189	12.9%	2,208,146.3	10.2%	12,288	10.6%	30,985.4	10.1%
	24,693	100.0%	$21,646,854.5	100.0%	115,749	100.0%	305,618.2	100.0%

Source: Vendor-supplied data tapes, domestic only; excludes military installations. Revenue data provided by Airlines Reporting Corporation.

1. The computer tapes submitted by the CRS vendors in response to Item 7 of DOT's Information Directive contained a total of 37,527 records. Approximately 7,900 records were eliminated because of invalid agency codes or because the data pertained to international or military installations. Another 2,300 records were eliminated because they contained data errors (e.g., negative bookings). Finally, roughly 660 records were merged because a vendor double counted the number of installations. As a result of these adjustments, the data base contained 26,547 records representing 26,547 installations (i.e., a vendor's equipment at an agency) at 24,693 agency locations. Many of the tables in this chapter, the statistical analysis presented in Chapter V, and the market share statistics presented in Appendix IV were derived from this data base.

2. Some agencies operate more than one CRS. In these situations, we have grouped agencies by vendor based on which CRS was used to make the greatest number of domestic bookings.

Table 3.2 presents information for 1986 on the average number of bookings at all CRS installations that were made for travel on flights operated by the vendor airlines, total bookings, and the average number of terminals operated at these installations. As Table 3.2 indicates, the typical SABRE and APOLLO installation made more bookings than did SYSTEMONE, PARS, or DATAS II installations. This relationship partly reflects the fact that typical SABRE and APOLLO installations were larger, operating an average of 5.2 and 4.6 terminals, respectively.

Table 3.3 presents information on the number of bookings per terminal. It shows that SABRE and APOLLO installations were, on average, more productive (a higher average number of bookings) than were SYSTEMONE, PARS, and DATAS II installations. In addition, Table 3.3 shows that a typical terminal operated at an APOLLO, SYSTEMONE, or DATAS II installation was used to book more segments on the host airline than was the case for a terminal operated at a SABRE or PARS installation.

C. Entry Into the CRS Industry

Firms exercise market power when they have the ability to raise prices for a good or service or restrict the introduction of new technology because they do not face competition from actual or potential rivals and because consumers lack reasonable alternatives for that good or service. To assess whether a firm has market power, economists evaluate the likely behavior of other incumbent firms and potential entrants if an established firm sought to raise its prices by restricting output (or by producing an inferior product). The ability of potential competitors to constrain the market power of established firms depends on whether there are entry barriers that provide incumbent firms with long-term competitive advantages. Barriers to entry have been defined "... as factors or conditions of the market that give the incumbent firm a persistent advantage over new entrants, so that entrants will not be attracted even though the incumbent earns economic profits."[2] As Fisher *et al*. make clear, however, not every advantage an incumbent firm enjoys should be characterized as an entry barrier. In fact, an entry barrier only exists when an entrant is not able to reproduce an incumbent firm's advantages (whether they be low unit costs, a superior product, or a reputation for excellent service) with an investment, in both time and money, comparable to that made by the incumbent.

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[2] Franklin M. Fisher, John J. McGowan, and Joen E. Greenwood, *Folded, Spindled, and Mutilated*: *Economic Analysis and U.S. v. IBM*, MIT Press, 1983, 165. In a 1979 article, Fisher states that, "An economically relevant barrier to entry is one in which unnecessary high profits are not bid away by entry. That is, a situation in which society would be benefited by entry but in which the attractiveness of entry from the point of view of society is not the same as the attractiveness from the point of view of the entrant." Franklin M. Fisher, "Diagnosing Monopoly," *Quarterly Review of Economics and Business*, April 1979, 24.

TABLE 3.2

AVERAGE BOOKINGS IN 1986 ALL INSTALLATIONS (INCLUDING SATELLITE TICKET PRINTERS) AND AVERAGE NUMBER OF TERMINALS PER AGENCY LOCATION

CRS Vendors	Bookings On Host Airline	Total Bookings	Average Number Of Terminals
SABRE	1,941	13,998	5.2
APOLLO	3,349	14,851	4.6
SYSTEMONE	1,581	6,893	3.6
DATAS II	1,370	6,616	3.4
PARS	903	8,292	3.3

Source: Vendor-supplied data tapes.

TABLE 3.3

AVERAGE BOOKINGS PER TERMINAL IN 1986 ALL INSTALLATIONS (INCLUDING SATELLITE TICKET PRINTERS)

CRS Vendors	On Host Airline	Total Bookings	Percent on Host Airline
SABRE	370	2,669	13.9
APOLLO	722	3,200	22.6
SYSTEMONE	439	1,914	22.9
DATAS II	408	1,968	20.7
PARS	275	2,522	10.9

Source: Vendor-supplied data tapes.

It is also important to recognize that potential entrants are attracted by the possibility of earning economic profits on their investments, i.e., they will seek to enter the industry if incumbent firms are earning a rate of return on their investments that is greater than their cost of capital (adjusted for the level of risk associated with those investments). As described in Chapter IV, it appears that the major CRS vendor airlines have earned substantial financial benefits from their ownership of CRSs, although there has been no new entry into the CRS industry. This suggests, but does not prove, that economic and institutional barriers may have impeded entry into the industry.

There is general agreement among economists that several factors play an important role in determining the degree to which entry barriers reduce the likelihood of entry into an industry and therefore the threat of potential competition.[3,4] The first factor is whether established firms enjoy substantial economies of scale and scope.[5] If established firms enjoy lower unit costs than do potential entrants, then a potential entrant will be at a competitive disadvantage if it attempts to enter the industry. The greater this cost disadvantage, the more discretion established firms have to raise prices above competitive levels. Entry on a large scale is also more likely to encourage established firms to reduce prices once entry occurs, thus making it more difficult for an entrant to become financially viable.

Some economists believe that scale economies do not constitute an entry barrier. Under this line of reasoning, unless incumbent firms operated efficiently (earning no economic profit), a potential entrant could, hypothetically, enter the industry. This argument assumes that it is possible for an entrant to make the investment necessary to enter a market, engage in "hit-and-run" pricing, and, then, exit the market costlessly. These conditions do not exist in the CRS industry.

Table 3.4 presents data that suggest that there may indeed be economies in the provision of CRS services. SABRE and APOLLO appear to enjoy lower unit

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[3] The Department has neither attempted to identify potential entrants into the CRS industry nor queried hypothetical entrants as to what economic factors have influenced their decision not to enter the industry.

[4] Steven C. Salop, "Measuring Ease of Entry," Antitrust Bulletin, Summer 1986, 551-570, and Fisher, *et al*., 165-191.

[5] Economies of scale exist when a firm's costs increase less than proportionately to an increase in its output. Economies of scope exist when one firm can produce two or more products at a lower cost than can two or more specialized firms. Of course, the concept of economies of scale as an entry barrier -- and therefore its influence on the behavior and performance of incumbent firms -- is only meaningful when such economies are considered in relation to the size of the market. A large market may support numerous firms, all of which enjoy economies of scale, that engage in competitive rivalry.

TABLE 3.4
APPARENT EFFECTS OF SCALE AND LEARNING ECONOMIES ON CRS EXPENSES

	APOLLO	SABRE	PARS	DATAS II	SYSTEMONE
Average 1986 Reported Expense per Booking	$1.81	$1.62	$1.74	$2.64	$2.36
Total Reservations Processed During 1986 (millions)	113.3	144.1	46.6	20.3	36.9
Total Years of Commercial CRS Operation Through 1986	11	11	8	5	5
Cumulative Reservations Through 1986 (millions)	545.5	637.1[1]	108.6[1]	53.9	81.1[2]

Source: Estimated from vendors' responses to DOT Information Directive, Items 3, 4, and 13.

1. For period 1980-1986; reservations activity not reported for years prior to 1980.

2. For period 1983-1986; reservations activity not reported for years prior to 1983.

costs than do the smaller vendors. Moreover, the number of reservations processed since SABRE and APOLLO began operating is several times the number processed by DATAS II, PARS, and SYSTEMONE. While these data are by no means conclusive, they suggest that the provision of CRS services may be subject to both scale economies and learning curve effects -- lower unit costs that stem from a vendor's larger scale of operation or from its greater cumulative experience in producing CRS-related services.

A second factor influencing the likelihood of entry is the financial risk that potential entrants face if they are unsuccessful. If an entrant incurs substantial sunk costs -- investments that lose all or a significant portion of their value if the entrant is forced to withdraw from the market -- then it will face greater financial risk and may be more reluctant to enter the industry. Put simply, if a firm is unable to recover the investment it must make to enter an industry, it is less likely that it will attempt to enter the industry. Of course, the longer it takes for an entrant to establish a production, distribution, and marketing network, the greater the financial returns the entrant must earn to make its investment profitable.

Table 3.5 presents estimates of the remaining unamortized value of non-recoverable investments that CRS vendors had made through 1986. While it is impossible to determine before the fact whether a firm's investments would

TABLE 3.5

ESTIMATED UNAMORTIZED VALUE OF NON-RECOVERABLE INVESTMENTS BY CRS VENDORS REMAINING AT END OF 1986 ($ MILLIONS)

Type of Investment	APOLLO	SABRE	DATAS II	SYSTEMONE	PARS
Programming and Other Product Development Costs	$43.7	$41.7	$38.3	NR	NR
CRS Marketing Expenses	59.7	49.1	31.6	24.0	17.8
Subscriber Conversion, Retention, and System Use Incentives	16.4	18.2	19.2	7.1	3.1
Subscriber Training and Support	91.2	89.2	12.6	17.9	NR
Total Non-Recoverable Investment	$211.0	198.2	$101.7	49.0	20.9

Source: Estimated from CRS vendors' responses to Information Directive, Items 13 and 16.

NR indicates that the item cannot be estimated from information reported by vendor.

lose all or a significant portion of their value if that firm withdrew from the market, the investments listed in Table 3.5 are indicative of the magnitude of the sunk costs that a potential CRS vendor would have to incur to enter the industry on a significant scale.

Finally, if an entrant faces an absolute cost disadvantage (i.e., the entrant's costs remain a certain percentage above those of established firms, even after taking into account the effect of economies of scale and scope), or consumers display a continued preference for the products or services of established firms despite the fact that the entrant's products have the same quality attributes and are sold at comparable prices, then the entrant will encounter problems in becoming a successful competitor.

To summarize, barriers to entry into an industry are higher when (1) incumbent firms enjoy pronounced economies of scale and scope, (2) a potential entrant faces significant financial exposure and risk, (3) an entrant takes a long time to establish itself in an industry, and (4) an entrant must overcome substantial absolute cost or consumer preference disadvantages.

Several of these potential entry barriers appear to be present in the CRS industry. For example, the computer software that operates CRSs was originally designed to operate the vendor-airlines' internal reservation systems. Accordingly, if a non-airline company sought to enter the CRS industry, it would have to incur substantial expense to develop and test its software, as well as to market its system. If the entrant subsequently failed and was forced to withdraw from the market, it might not be able to recover all of its investment.

Further, while we have not attempted to estimate precisely the cost advantage that established CRS vendors enjoy because of economies of scale and scope, in all likelihood such advantages are not trivial and could be an important entry barrier if an entrant sought to enter the industry at less than minimum efficient size.

Finally, certain provisions of the contractual relationship between vendors and travel agents would make it more difficult for a potential entrant to capture market share without incurring substantial costs to buy agents out of their current CRS contracts -- costs that established vendors generally have not incurred. In addition, a non-airline vendor would not be able to capture incremental airline revenues and would not have the benefit of an internal reservation system capability on which to build a CRS. Also, since there are substantial start-up costs for agents in learning to operate a new CRS, agents would probably not adopt a new system without receiving some financial incentive from an entrant (e.g., discounts on equipment or cash payments). As a result, the entrant would be compelled to incur costs that an established CRS vendor did not incur.

A firm may also engage in strategic behavior to raise a rival's costs, thereby making it less competitive.[6] Such behavior can be directed against other established firms and prospective entrants. To the extent that the vendors' liquidated damages clauses contained in their travel agency contracts exceed the actual damages the vendor would suffer if these contracts were terminated, these clauses have the effect of making it more expensive for a rival vendor to induce an agent to switch systems.

Thus, while the financial commitment necessary to enter the CRS industry is certainly not so large as to preclude entry, the substantial sunk costs that would have to be incurred to develop a competitive CRS, the economies of scale and scope that the largest vendors probably enjoy, and the time and money it would take to acquire a critical mass of subscribers reduce the likelihood of entry into the CRS industry.

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[6] Steven C. Salop and David T. Scheffman, "Raising Rivals' Costs," American Economic Review, May 1983, 267-271.

D. CRS Features and Enhancements

The CRS vendors compete vigorously with each other to provide subscribers with state-of-the-art computer software and enhancements.[7] According to the agents contacted during the course of this study, the different CRSs are now closely competitive in terms of their basic service features. Every CRS, for example, informs subscribers about schedules, fares, and seat availability, issues tickets, and records bookings. All the systems, moreover, have advance seat selection capabilities, can issue boarding passes, maintain waiting lists, display preferred airlines (or classes of service), search for the lowest fare or the first available flight, and calculate fares for complex domestic and, to a lesser degree, international itineraries. Appendix II describes the algorithms used by the different systems to rank flights for display to travel agents.

Automated reservation systems also are used to book reservations for other services -- hotel and car rentals, cruises, railways, tours, boat charters, theatre and sporting events, as well as to issue traveler's checks, exchange currency, write insurance, transact duty-free sales, and order flowers. Other functions include the maintenance of information in the computer for general messages or bookings that cannot be processed immediately, telex and telemail, credit card approval, information on weather conditions, ski conditions, visa requirements, and health regulations. Computer reservation systems also store and retrieve information on customers -- their airline, dietary, and seating preferences, as well as their addresses, telephone numbers, and credit card numbers. Booking information can also be combined with stored passenger records so that itineraries can be mailed to clients along with their tickets.

Ordinarily, messages are transmitted between a CRS and the internal computers of participating carriers through the switching system operated by Aeronautical Radio, Inc. (ARINC). Because delays in receipt of messages may be substantial, especially during peak periods, airlines are often forced to anticipate bookings not yet received. In certain circumstances, booking requests may be rejected on the assumption that other travelers are already in the queue for tickets/seats, although these reservations may not yet have been made. Also, seats that show up as "available" on a travel agent's terminal may have already been sold by the time an agent's delayed booking message is received.

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[7] The vendors receive flight-related information from three sources: (1) the Airline Tariff Publishing Company, which collects information on airline fares; (2) the Official Airline Guide, which compiles information on airline schedules; and (3) the airlines' in-house computers, which provide up-to-date information on seat availability. Seat availabililty is determined by the air carrier, not the vendor. When sales of a particular class of seats reach a level that has been predetermined by an airline, its internal reservation system sends out a "closing" message to all other carriers. If the carrier wishes to sell the last seats, this predetermined level of capacity may be below the actual number of available seats.

To provide the agent with an additional source of information about seat availability, several means of direct, computer-to-computer linkage have been developed as adjuncts to the primary integrated display. One approach is "direct access," which permits travel agents to read seat inventory and other information directly from an airline's internal reservation system. Whenever possible, commands are entered in the CRS control language and automatically translated to the program language used by a particular airline's computers.

Bookings are then recorded in the CRS for subsequent transmission to the reservation computer of the airline on which they were made. Therefore, while the agent is assured of the latest information on seat inventory, it is still possible for bookings to be lost in transmittal or be rejected when they arrive after seats have been sold in the meantime to other travelers. All vendors charge an additional booking fee for direct access participants. Table 3.6 lists direct access participants in each CRS.

While airlines are required to honor bookings recorded by a CRS in which they participate, another enhancement is offered by some CRSs to allow agents to withdraw seats directly from an airline's inventory and receive confirmation from that airline's own internal reservation system. The ability of a system to confirm reservations by reference to an airline's seat inventory is termed "last seat availability." Such "read/write" access is offered by SABRE, APOLLO, and PARS. Direct access functions can and do improve the quality of information that a subscriber obtains on the services of participating airlines. Nevertheless, one CRS vendor has indicated to us that it believes CRSs still provide more comprehensive services and reliable information for bookings on a vendor airline's own flights.

A set of enhancements that is beginning to have an effect in the air travel industry is associated with the new, more powerful personal computers. (Personal computers, and their impact on the CRS industry, are discussed in Chapter VII.) For example, except for PARS, which has adopted the Altos Personal Computer, all vendors have started to promote systems based on the IBM Personal System/2. This computer system will allow agencies the capability to automate functions performed previously by hand or by CRS central processors. Subscribers also will have available the conventional range of microcomputer functions -- accounting software, spreadsheets, word processing, calendar and calculator, notepad, reminder, and data base management capability. APOLLO will soon market a split-screen technology that will permit the flights of three airlines to be displayed in one quadrant; in the other three quadrants information on fares, schedules, and seat availability will be displayed for each of the three airlines.[8]

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[8] A service feature now being offered by all vendors is the placement of remote terminals and ticket printers in the offices of travel agencies' corporate customers. In place of the special code that now must be mastered to operate agency CRSs, these corporate systems will guide the booking process by a "plain-language" menu; reservations will then be queued to travel agents for correction, and the tickets printed in the customer's office.

TABLE 3.6
PARTICIPANTS IN CRS DIRECT ACCESS
(As of December 1, 1987)

AIRLINE	SABRE	APOLLO	PARS	SYSTEMONE	DATAS II
American	H	D	D	D	D*
United	T	H	T	D	D*
TransWorld	T	T	H	D	D
Eastern	T	T	D	H	D*
Delta	T	T	D	D*	H
Continental	T	D	D	D	
Northwest	T	D	H*	D	D
Pan American	T	T	D	D	
USAir	T	T	D	D	D
Piedmont				D	
Alaska Air	T				
Gulf Air	T*				
Rocky Mountain		D			
San Juan		T			
Aspen Air		T			
Westair		T			
Air Wisconsin		T			
British Airways	T	T		D	
Air France	T		D*	D	
Varig	T			D	
Iberia	T			D	
KLM	T	T	D	D	
Canadian Pacific				D	
British Cal.				D	
SAS		D	D	D	
Aer Lingus				D	
Qantas				D	
Argentinas				D*	
Swissair				D*	
Sabena				D*	
Ecuatoriana				D*	
Faucett				D*	
Viasa				D*	
Aeroperu				D*	
Philippine				D*	
Avensa				D*	

Source: CRS vendors.

H = Host
D = Direct Access
T = Last Seat or Read/Write Access
* = Prospective

E. The Vendor-Agent Relationship

The advances in computer hardware and software over the past 20 years have enhanced the productivity and effectiveness of travel agents. Before CRSs became an integral part of the travel business, agents were required to search through the Official Airline Guide for flight information, review airline tariff summaries for information on fares, and then telephone an airline to determine seat availability and to confirm other pertinent data. Once the reservation was confirmed, the agent would then write a ticket manually for his or her customer. The legal status of travel agents was governed for many years by the Air Traffic Conference (ATC), an accreditation system that was approved by the CAB and administered by the airlines. The ATC prescribed the conditions under which agents operated and the terms of their compensation; it also established a mechanism for airlines and travel agents to exchange funds. A major feature of the ATC agreement was the "exclusivity" provisions, which prohibited non-ATC accredited agents from selling airline tickets.

After a comprehensive investigation in 1979, the CAB found that many of the ATC's rules governing travel agents were objectionable.[9] The rule that prevented airlines from dealing only with agents that had been accredited by the ATC was discarded, as was the rule that prohibited agents from rebating a portion of their commissions to customers. Even before the investigation was completed, the CAB voted to eliminate fixed, industry-wide commissions. Airlines were also allowed to negotiate discounts, rebates, and commissions directly with firms providing ticketing services, not just travel agents. Today, agents receive commissions based on the value of the tickets they sell; they also receive volume incentives ("override" commissions) from air carriers. Table 3.7 provides information on the commissions paid to travel agents by each major air carrier. Commission expenses for the major airlines totaled $3.34 billion in 1986, up from $691 million in 1976. During this period, commission expense increased from 4.4 percent of the major airlines' operating expenses to 8.7 percent by 1986.

Table 3.8 provides information on the number of CRSs subscribed to by travel agencies in 1986. At that time, 93.5 percent of automated travel agencies subscribed to one CRS, while 5.7 percent subscribed to two CRSs, and the remainder (less than one percent) to three or more systems.

Table 3.9 provides information on the average number of terminals operated per agency. In 1986, almost 80 percent of all travel agencies operated five or fewer terminals, another 14.7 percent operated six to ten terminals, and the remaining 5.4 percent operated more than ten terminals.

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[9] The Civil Aeronautics Board, "Investigation into the Competitive Marketing of Air Transportation," Docket 36595, Order 79-9-64.

TABLE 3.7
TRAFFIC COMMISSIONS

	1976		1986	
	Traffic Commissions ($000)	Percent of Total Op. Expense	Traffic Commissions ($000)	Percent of Total Op. Expense
American	76,451	3.8	443,890	8.1
Braniff	26,504	4.3	--	--
Continental	17,863	3.5	160,343	8.4
Delta	50,378	3.4	379,257	8.9
Eastern	69,725	4.0	349,485	7.8
Northwest[1]	86,090	6.2	515,116	11.2
Pan American	128,434	6.3	245,974	7.9
Piedmont	2,887	2.0	93,583	6.2
Trans World[2]	89,389	4.5	266,370	7.4
United	99,621	3.8	677,329	10.1
USAir	12,736	3.0	120,987	7.5
Western	27,205	4.7	88,538	7.2
Total	$691,710	4.4%	$3,340,874	8.7%

Source: Airline-submitted Form 41 Schedules.

1. In 1976 commission expenses for North Central, Southern, and Hughes Air West have been included under Northwest; in 1986, commission expense for Republic is included.

2. Includes commission expense data for Ozark.

TABLE 3.8
DISTRIBUTION OF TRAVEL AGENCIES BY NUMBER OF CRSs SUBSCRIBED TO FOR CALENDAR YEAR 1986

Number of CRS Vendors	Agency Locations	Percent Distribution
1	23,090	93.5%
2	1,410	5.7%
3	147	0.6%
4	34	0.1%
5	12	0.05%
Total	24,693	100.0%

Source: Vendor-supplied data tapes. After these tapes were edited and corrected there were 26,547 CRS installations (i.e., a location where a vendor's equipment was being used) and 24,693 agency locations in operation in 1986.

TABLE 3.9

DISTRIBUTION OF TRAVEL AGENCIES BY NUMBER OF CRS TERMINALS FOR CALENDAR YEAR 1986

Number of CRS Terminals	Agency Locations	Percent Distribution
1	1,950	7.9%
2	5,602	22.7%
3	5,544	22.5%
4	4,324	17.5%
5	2,287	9.3%
6-10	3,635	14.7%
11-15	679	2.7%
16-25	400	1.6%
26-50	182	0.7%
51-75	50	0.2%
76-100	20	0.1%
Over 100	20	0.1%
Total	24,693	100.0%

Source: Vendor-supplied data tapes. After these tapes were edited and corrected, there were 26,547 CRS installations and 24,693 agency locations in operation in 1986.

The fees charged to travel agents by vendors for the installation and use of equipment are negotiated. Although it is possible to purchase equipment from CRS vendors, subscribers generally lease it. The costs of the lease to the subscriber depends upon the type of equipment operated, the number of terminals, and a host of other factors. Equipment charges usually diminish with multiple units; for example, the installation charge for the first terminal may be $500, but each additional terminal may cost only $100. Typically, the vendor will offer a subscriber a choice of terminals, ticket printers, boarding pass printers, and other peripherals. Vendors may also provide agents with personal computers, expansion boards, plotters, converters, cartridges, diskettes, keyboards, modems, and back-office software.

Most vendors appear to devote considerable resources to retaining, recruiting, and converting subscribers to their CRSs. Internal corporate reports gathered in the course of this investigation as well as press reports indicate that the vendors are presently engaged in a "conversion war."[10] The smaller vendors, in particular, have made major commitments to upgrading the capability of their systems and acquiring new subscribers. In order to convert an agent or to ensure that subscribers continue to use a vendor's CRS, all vendors dispense generous financial inducements to certain agents. In 1986, the vendors made over $42,000,000 in direct cash payments to their subscribers. The vendors also incurred substantial non-cash obligations, including free travel on the vendor airline, hotel accommodations, seminars, luncheons, equipment discounts, and the free use of equipment. Table 3.10 presents information on these expenses.

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[10] Nadine Godwin, "DATAS II Banks on Conversions in Bid to Climb in Vendor Ranks," Travel Weekly, April 28, 1987. Delta is described as "... pushing conversions of agencies from other systems with extra vigor."

TABLE 3.10
PAYMENTS PROVIDED IN 1986 TO INDUCE AGENTS TO SUBSCRIBE OR REMAIN SUBSCRIBERS TO THE HOST'S SYSTEM

	Cash	Non-Cash
SABRE	$ 2,500,000	$142,400,000[1]
APOLLO	6,109,417	3,874,595
SYSTEMONE	3,221,576	185,837[2]
PARS	30,000,000	1,318,141
DATAS II	697,808	3,938,305
	$42,518,801	$151,716,878

Source: Information Directive, Item 16.

1. Up to October 1986. According to SABRE, these non-cash obligations are to be amortized over a five-year period.

2. Includes only free airline tickets to travel agents. Each vendor employs a different method for computing the non-cash expenses it incurs to convert or retain subscribers.

Table 3.11 provides information on the number of agency locations, conversions, newly automated subscribers, and contract renewals. In 1986, 8,022 subscribers renewed their existing contracts, there were at least 3,978 newly automated agency locations, and there were 1,107 conversions.

A travel agent may select a CRS because of the vendor airline's reputation for superior service. In those markets where the vendor airline is the dominant carrier and where travelers -- particularly business travelers -- regard that airline as their first choice, it may make good business sense for the agent to use that airline's CRS. Further, a vendor airline that has a significant air transportation presence in a market is in a position to offer travel agents in that market more valuable inducements -- free travel on the vendor airline, class-of-service upgrades, bonuses for the vendor airline's frequent flyer program, cooperative advertising, or greater commissions.

TABLE 3.11

SUBSCRIBERS' RENEWAL AND CONVERSION ACTIVITY DURING 1986

		NEW SUBSCRIBERS		
	Agency[1] Locations	Conversions[2]	Newly[3] Automated	Contract Renewals
SABRE	8,677	269	1,378	3,730
APOLLO	6,511	290	1,018	994
SYSTEMONE	4,271	340	531	1,462
PARS	3,189	121	702	650
DATAS II	2,045	87	349	1,186
TOTAL	24,693	1,107	3,978	8,022

Source: Information Response, Items 7 and 33; vendor-supplied data tapes.

1. This number reflects only those locations where the vendor is either the only vendor or the primary vendor (accounting for the largest number of bookings). Vendors try to maintain one contract per location, although it is possible for one contract to cover several locations. The number of locations is taken from the vendor-supplied data tapes.

2. Total new subscribers through conversions exceeds the vendor-reported total of subscribers lost through conversion and expired contracts. In some cases where agencies are small and partially automated, some vendors count new subscribers as either newly automated or as conversions. Also, where some vendors counted a new subscriber as a converted agency, the vendor losing the contract may have counted the agency as an expired contract or a canceled contract rather than a contract lost to conversion.

3. SABRE estimated the number of newly automated agents in 1986.

Also, agencies may adopt a CRS because of the superior technical support a vendor provides for the maintenance of its system. Adequate training of agency personnel is an important consideration in deciding which system to adopt; the agent must be confident that the vendor will continue to provide the technical support and training necessary to get maximum productivity from its CRS. Moreover, a travel agent may benefit financially through free upgrades of terminals, ticket printers, or other equipment -- in addition to promotional incentives, such as cash payments, equipment discounts, or free travel. All of these factors contribute to the development of a long-term business relationship between a travel agent and a CRS vendor.

F. Vendor-Carrier Relationship

Airlines contract individually with CRS vendors to have their schedules, fares, rules, and other flight-related information displayed and to have tickets issued. If a passenger is booked by a vendor airline or its CRS subscriber, the participating airline is charged a booking fee.[11] The CRS vendors charge different booking fees, depending on whether the CRS displays the airline's seat availability and whether the CRS accesses the airline's computer to verify seat availability. The vendors' current booking fees are presented in Table 3.12.

TABLE 3.12
COMPARATIVE BOOKING FEES

CRS Vendor	Schedule & Fare Display Only; Reservations Via Telex	Schedule & Fare Display Only; Reservations Via CRS	Seat Availability and Confirmation	Direct Access
SABRE	$1.00	$1.50	$1.85	$2.10
APOLLO	1.00	1.40	1.85	2.10
SYSTEMONE	NP	1.00	1.85	2.10
PARS	1.00	1.50	1.85	2.10
DATAS II	NP	1.50	1.85	2.00

Source: CRS vendors.

NP = Service not provided.

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[11] A booking is the recording of a passenger's name at the time of departure of each confirmed segment in the passenger's itinerary. For example, one passenger on a direct flight is counted as one booking; one passenger on a two-segment connecting flight is counted as two bookings.

Prior to adoption of the CAB's rules in 1984, vendors discriminated among air carriers in terms of booking fees they charged. For example, airlines that provided "feed" traffic to the vendor airline were charged relatively low booking (or access) fees, while new entrant and other competing air carriers were charged higher fees. The CAB imposed a non-discriminatory fee restriction on CRS vendors as part of its 1984 rules, requiring that all carriers be charged a uniform but otherwise unconstrained fee for access to CRS services. The relationship between a CRS vendor and each participating airline in its system is governed by contract.

In order to ensure that all subscribers receive the same information, under the terms of their contracts, participating air carriers are required to provide vendors with current information on schedules, interim schedule changes, fares, fare quotations, and other relevant flight-related data. For instance, if an air carrier elects to have seat availability information displayed, this information must be for each flight, and it must be on a segment or "first-closing" basis.[12] Finally, participating carriers are required by their contracts with CRS vendors to accept for transportation any passenger carrying a ticket bearing an "OK" status issued through a CRS. This requirement applies even if a record of the reservation does not exist in the participating carrier's internal reservation system, and even if denied boarding compensation may have to be paid.

Travel agents want to be able to select seats and issue boarding passes for their customers. As discussed previously, agents are able to do this if there is a direct communications link between a vendor's computer and a participating air carrier's in-house computer. Each automated reservation system also contains a Direct Reference System (DRS). This system allows participating carriers to provide agents with carrier-specific marketing information. Table 3.13 provides information on the fees charged by the vendors for their DRS offerings.

The vendors do not charge a separate fee for each boarding pass issued; instead, they provide specialized equipment to participating airlines that provide a "hook up" capability, as well as boarding pass printers to subscribers. The fee for the boarding pass, therefore, is an established charge for the use of this equipment and is similar to the equipment leasing arrangements made with subscribers for computer terminals, printers, and other equipment.

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[12] Participating carriers must ensure that their internal reservation systems comply with the interline reservation policies procedures and message formats set forth in "Standard Interline Passenger Procedures" and "ATC/IATA Reservations Interline Message Procedures".

TABLE 3.13

MONTHLY DRS CHARGES

Vendor	Basic Charge	Extra Pages
SABRE	$2,500	No charge
APOLLO	$2,500 for a "Block"	$1,500 per additional "Block"
SYSTEMONE	No charge	No charge
PARS	$1,000 for 88 pages	No additional pages, unless another 88 are bought
DATAS II	$500 for 50 pages	$10 per page over 50 pages

Source: Contracts between participating airlines and vendors.

Participating carriers can also acquire market information from the vendors' CRS data bases. The charge for providing this information ranges from $50,000 to $100,000 per year, for which vendors provide a monthly computer tape containing information on bookings made by their subscribers through their CRSs. The tapes are considered proprietary, and participating carriers must agree not to describe to third parties any information, material, or data contained on the tapes.[13]

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[13] Source: Information Directive, Item 8.

IV. THE FINANCIAL BENEFITS OF AIRLINE OWNERSHIP OF COMPUTER RESERVATION SYSTEMS

A. Introduction

One of the major controversies surrounding CRSs concerns the financial benefits vendor airlines receive from their ownership of these systems. If the vendors are able to charge participating airlines fees that exceed the costs of providing reservation services, they may affect the pattern or intensity of competition among airlines. Similarly, subscriber fees that exceed the costs vendors incur in equipping, training, and supporting travel agents may reduce the service they provide to airline travelers.

In the next section, we discuss previous estimates of the systems' financial benefits. In Section C, we discuss the conceptual issues involved in measuring the financial benefits of CRS ownership. Section D discusses the technical complications that arise in measuring these financial benefits. Section E measures the financial benefits of airlines' CRS investments. In Section F, we measure the accounting rates of return on the vendor airlines' CRS investments. Finally, we provide a brief summary of the major findings reported in previous sections.

B. Previous Estimates of the Financial Benefits of CRS Ownership

Although previous analyses have estimated the economic returns on some vendors' CRS investments, these estimates have been produced either by the vendors themselves or by non-vendor airlines seeking legal or regulatory redress for alleged competitive abuses of CRS systems. Not surprisingly, their resulting estimates have varied widely. For example, in 1985 American Airlines and United Airlines reported that they expected to earn rates of return of 19 percent and five percent, respectively, on their CRS systems through 1990, even with the significant booking fee increases imposed in response to the CAB's 1984 rules.[1] In arriving at these estimates, the vendors assumed that substantial investments in developing and marketing their systems would continue, that their systems' equipment and other assets would have no remaining value after that period, and that CRSs made no contribution to the profitability of their airline operations even prior to the CAB rules prohibiting display bias.

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[1] Robert L. Crandall, Chairman and President, American Airlines, Inc., Statement Before the Aviation Subcommittee of the Senate Committee on Commerce, Science, and Transportation, March 19, 1985; Jerome E. Hass, National Economic Research Associates, "The Profitability and Pricing of SABRE Computer Reservation Services," March 19, 1985; and Statement of Richard J. Ferris Before the Aviation Subcommittee of the Senate Committee on Commerce, Science, and Transportation, March 19, 1985.

Yet by reducing the size of the continuing investments slightly, by including a residual value that reflected the systems' continued potential for profitable operation beyond 1990, and by including their estimated contributions to the profitability of their respective airline hosts, a second study estimated that SABRE and APOLLO would earn, respectively, economic rates of return as high as 66 percent and 161 percent over their lifetimes.[2] While the magnitude of the systems' contributions to the profitability of their airline owners is the primary source of divergence between these estimates, it is also the most controversial and difficult-to-measure component of the actual rates of return they earn.

In assessing the returns earned by airlines' CRS investments, it is important to recognize that the 1984 CAB rules altered both the sources of CRS profits and the investment strategies of their airline owners. From their advent during the mid-1970s until 1984, the vendor airlines used their CRSs as marketing devices capable of diverting passengers from other airlines to their own flights, thereby increasing load factors on scheduled flights and the resulting earnings of their airline operations. To achieve these marketing benefits, vendors presented CRS-equipped travel agents with screen displays that biased rankings of departure alternatives in favor of their own flights, thus influencing some passengers who would otherwise have traveled by competing airlines to travel instead on flights operated by the vendor airline.[3]

For example, a 1984 analysis of 1,000 city-pair markets conducted by United Airlines showed that a United flight was displayed first in response to an APOLLO user's request almost 50 percent of the time. In total, United flights averaged 2.3 of the flights listed on the first computer "screen" presented to an APOLLO user in response to a request for flight information (most CRS displays list up to six direct flights or three connecting flights on each individual screen). Yet this analysis reported that when American's SABRE system was queried for flight information in those same 1,000 markets, a United flight appeared first in the display ranking less than 30 percent of the time, while the average number of United flights listed on the first screen presented was less than one.[4]

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[2] William J. Duffy, Analysis of American's and United's Statements Regarding the Profitability of SABRE and APOLLO, May 1985. A more recent analysis that arrives at similarly high profitability estimates is reported in Expert Testimony of Peter B. Frank in re Air Passenger Computer Reservation Systems Antitrust Litigation, USAir, Inc. et. al., Plaintiffs, v. American Airlines, Inc., and United Air Lines, Inc., Defendants, CV 86-0697-ER (Mcx).

[3] Vendors also "sold" preferential display position to selected air carriers who became co-hosts. Generally speaking, the cohost preference was somewhat less than what the vendor reserved for itself.

The difference in the treatment accorded to United flights presumably represented the combined effect of APOLLO's display bias in favor of United flights (and against American's flights), together with SABRE's tendency to favor flights operated by its owner, American Airlines, where they competed with United flights. A separate analysis conducted by American estimated that the effect of preferential display of American's flights by its SABRE system was to increase the number of passengers booked on those flights by SABRE-equipped travel agents by almost 20 percent. At the same time, this analysis estimated that the combined effect of pro-American and anti-United bias in ranking flights for display in the SABRE system may have been to reduce bookings by SABRE agents on United flights by as much as one-third.[5]

By prohibiting display bias, and thus reducing the vendors' ability to use their systems as airline marketing tools, the 1984 CAB rules moved CRSs toward becoming commercial reservation service subsidiaries of their airline owners. In contrast to the pre-rule situation, CRS systems now profit directly by charging participating airlines for each passenger reservation generated by their extensive networks of computerized travel agents, as well as from fees charged to subscribers for equipment installation, training, and other services. Moreover, most CRS vendors have begun to charge their airline owners their standard booking fee. Nevertheless, some CRSs may continue to enhance the earnings of their owners' airline operations even in the post-rule environment, if the business relationships between vendors and subscribers (plus enhancements available through a vendor's CRS) create a halo effect that induces travel agents to book a disproportionate share of passengers on their respective vendors' flights.

The CAB's 1984 rules prompted major new investments by vendors in purchasing dedicated CRS computers and facilities, developing advanced features such as real-time access to seat availability, and marketing their systems to potential new subscribers, including agents already subscribing to another CRS. Another consequence of the CAB rules has been rapid evolution in the roles played by CRSs within the airline organizations that own them. Most vendors apparently began to treat their CRSs as separate profit centers, either somewhat before or immediately after those rules were issued. Today, most owner airlines pay their CRS subsidiaries the standard booking fee.

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[4] Reported in "Automation - Impact on Agency Shares," December 1984, document submitted by United Airlines in response to USDOT Information Directive, Item 20, 005176.

[5] Reported in "Scenarios for Disposition of Bias in Industry Automated Systems," August 1983, document submitted by American Airlines in response to USDOT Information Directive, Item 20, 20-0016.

Because the CAB rules altered the nature of CRS investments and the sources of returns they earn, this analysis investigates the financial benefits of CRS ownership in the post-CAB rule environment, as well as their benefits as airline marketing instruments.

C. Conceptual Issues in Measuring the Financial Benefits of CRS Ownership

The financial benefits received by the airline owner of a CRS consist of four components: (1) the booking fees it charges participating airlines; (2) the fees it receives from travel agents and others who subscribe to its CRS; (3) the value of reservation services the CRS and its network of subscribers provide to its airline owner; and (4) any increase in the revenues and earnings of the airline's passenger-carrying operations stemming from travel agents' use of its CRS.

An airline that owns a CRS thus receives financial benefits in the form of cash revenues from the reservation services it provides to airlines and other participants in its system (such as hotels and car rental firms), as well as in return for the equipment, training, and support services it provides to CRS subscribers. While cash revenues received from participants and subscribers can be measured, each CRS-owning airline also receives two benefits that are more difficult to measure because they take the form of services provided by the CRS to its airline owner. Although conceptual and technical problems arise in estimating the value of these services, they must be included among the financial benefits of CRS ownership in order to estimate the returns generated by airlines' investments in developing their CRSs.

The first non-cash financial benefit received by a CRS-owning airline is the reservation services it receives through the network of travel agents equipped with its own CRS. Each system's subscribers book a significant number of passengers for travel on flights operated by its airline owner. During 1986, for example, the share of total bookings made by subscribers to each of the five CRSs that were for travel on flights operated by its vendor airline ranged from 14 to 23 percent.

Because no booking fees were paid by a system's airline owner to its CRS before 1987, in response to our Information Directive the vendors reported no cash revenue comparable to that received from participating airlines. (As mentioned, most owner airlines now pay their CRS affiliates their standard booking fee.) Thus, no direct cash measure of the value of this additional financial benefit of CRS ownership to an airline was available for the time frame we have examined. Nevertheless, the investments reported by each system's airline owner include expenses for producing the reservation services it receives through its own CRS; accordingly, it is necessary to include some estimate of the value of these services among the financial returns generated by these investments.

It is important to note that these services are distinct from the computerized reservations services provided to the host airline by its joint use of the CRS as an internal reservations system. In that capacity, the system is used by reservation agents employed by the airline, rather than by travel agents who subscribe to the commercial CRS vended by the same airline. The CRS vendors have made detailed efforts to separate the costs of this internal use of their systems from the costs incurred in offering commercial CRS services, and they report only the latter costs in their expense accounts.[6]

In the early years of CRS promotion, when only a small fraction of travel agents were equipped with CRSs, the correct measure of the imputed value of this additional source of income would have been the difference between the cost to the airline of producing these reservation services internally and the cost at which they could be produced with a CRS.[7] A number of complications arise, however, in estimating this measure of the value of CRS services provided to the airline host.

First, if screen display bias and the halo effect do increase the fraction of bookings through travel agents equipped with a vendor's CRS that are for travel on flights operated by the host airline, the volume of those bookings overstates the reduction in internal reservations activity that has been transferred to the CRS and on which cost savings presumably occur.

Second, much of the cost of producing host airline reservation services externally as part of its CRS activity is already reflected in the cash outlays reported by vendors. Thus, it is necessary to determine the expenses the airline would have incurred to produce these services using its internal system and employees, and to report these savings as a form of income generated by the CRS, rather than simply to estimate the amount by which this expense exceeds that for processing an equivalent volume of reservations activity through the CRS. The Department's Information Directive, however, requested vendors to omit expenses for operating their internal reservations systems from their reported outlays.

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[6] TWA reports detailed total expense accounts for PARS as well as their allocation between internal reservations services and commercial CRS services, which are clearly identified as such; only the latter are included in the analyses reported in this chapter.

[7] An alternate procedure would be to reduce all CRS-related investment outlays and operating expenses by the proportion of passenger bookings made by travel agents using the CRS that entail travel on the host airline. This would approximate the savings in internal reservations system expenses that vendor airlines realize as a result of their CRS activities, while adding that amount to the estimated returns earned on their investments in developing the capability to act as CRS suppliers. Although this procedure should produce a more realistic estimate of the value of CRS activities to the airlines that operate commercial reservations systems, its accuracy depends on comparability between the costs of operating reservations systems for internal use and external sale. This requires not only that the average costs for producing internal and commercially saleable reservation services be closely comparable, but also that this comparability be unaffected by a substantial transfer of reservations activity from an airline's CRS system to its internal reservations system. Unfortunately, evidence on this question is scarce, and what is available suggests that airlines face very different average costs for producing internal computerized reservations services and commercial CRS capabilities.

Third, the remaining expenses for externally generating reservations using a vendor's CRS, which are paid in the form of commissions to travel agents (who generate reservations that otherwise would have been made by airline-employed reservation agents), are recorded as expenses to the owner airline, rather than appearing on the accounts of its CRS. Expenses associated with equipping, training, and supporting these travel agents are reported for the CRS, but these are partly or completely offset by revenues generated by the various fees charged to its travel agent subscribers.

Finally, an airline developing a CRS in a non-automated environment would regard the alternative as incurring the costs of processing reservations internally. When all agents are automated, however, the relevant alternative becomes that of incurring the obligation to pay booking fees to other vendors. Thus, the appropriate basis of comparison changes over time. Therefore, we have elected to employ the average booking fee charged by each vendor to its participating carriers as an approximate measure of its estimated cost savings from reducing the volume of internally processed reservations. Prior to the CAB rules, for strategic considerations, vendors charged different booking fees to each participant in their systems; therefore, the relationship of each vendor's average booking fee to the savings per reservation made is unclear.

Since raising their booking fees, vendors have argued that booking fees understate the costs participating airlines would incur in producing the same reservations services through their respective internal systems.[8] Assuming that all airlines face roughly similar costs for such internal reservations activity, we can infer that booking fees represent a minimum estimate of the savings to a CRS-owning airline from transferring reservations activity from the airline itself to the CRS. In addition, as these systems became separate profit centers and began charging their airline affiliates standard booking fees, the rationale for imputing CRS income from its parent airline at the same booking fee charged to participating airlines was strengthened.[9]

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[8] See, for example, Testimony of Michael A. Buckman, President, SABRE Travel Information Network, Before the Subcommittee on Antitrust, Monopolies, and Business Rights, Committee on the Judiciary, December 10, 1987, 16; and Statement of United Airlines/COVIA Corporation Before the United States Senate Judiciary Committee, December 10, 1987, 11.

The second form of non-cash financial benefit that may be generated by an airline's investment in a CRS is an increase in the number of passengers that travel on its flights as a result of travel agents' use of its reservation system. In fact, CRSs were developed to enhance the financial viability of their airline owners' passenger-carrying operations. Some CRS systems originally did so by presenting travel agents with rankings of flight alternatives that displayed the owner airline's flights more prominently. By biasing the presentation of information on flight alternatives on the computer displays used by CRS-equipped travel agents, it is commonly believed that vendor airlines were able to divert passengers to their own flights from those operated by competitors. The CAB sought to eliminate such display bias with its 1984 CRS rules, and vendors' responses to the Department's CRS Information Directive indicate that carrier-specific bias has been eliminated from the procedures used to rank flights for CRS displays. Accordingly, our estimates of the financial benefits accruing to vendor airlines from their ownership of CRSs include the estimated value of increased passenger volumes from display bias only through November 1984, when the CAB's rules became effective.

Travel agents may also have been induced to book more passengers on a CRS-owning airline's flights as a result of that airline's maintenance of supportive business relations with its network of subscribers. This halo effect may persist even in the post-rule environment. A travel agent may choose to affiliate with a particular CRS vendor for a variety of reasons: one system's vendor airline may be preferred by many of the agent's customers (perhaps because of its presence in the local airline market), the agent may judge a particular system to have superior performance, or the agent may receive greater financial incentives from affiliating with one vendor.

Moreover, even with direct access features, some CRSs may still offer better services for booking and ticketing the owner airline's flights than for other carriers' services. Not all CRSs, for example, provide equal capabilities for issuing boarding passes. Officials of at least one vendor have indicated that they consider this difference in capabilities to be a significant source of the halo effect. The magnitude of the halo effect would be determined by the specific combination of factors that influence each individual agent to subscribe to a particular CRS and to book passengers on the vendor airline. Although we have estimated the halo effect for each carrier, we have not attempted to apportion those totals among their various sources.

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[9] The financial estimates rely on data for CRS operations through 1986. No vendor recorded booking fee payments to its affiliated CRS in that time frame. Therefore, the imputation of such revenues as value of services is appropriate.

Estimating the value of this component of an airline's return on its CRS investment also requires estimating the fraction of any incremental revenues (additional passenger revenues that result from display bias and the halo effect) that result in increased airline earnings. If the additional passenger volumes that stem from increased bookings on CRS-owning airlines' flights by their subscribers serve mainly to raise load factors, and can thus be accommodated at little additional cost, then a substantial fraction of any incremental revenues may ultimately be reflected in greater earnings. Yet if these additional passenger volumes are sufficiently large or distributed over airlines' route networks and schedules so as to require additional flights to accommodate them, the contribution of these additional revenues to airline earnings may be much more modest.

The most common estimate used by the vendor airlines appears to be that 80 percent of incremental revenues is ultimately reflected in increased operating earnings for a CRS-owning airline. This figure implies that airline managers believed that any additional airline traffic generated by automating travel agents with its CRS could be accommodated with existing airline capacity, and thus at little additional cost. When CRSs were first developed and any diverted passenger traffic was necessarily small, this assumption may have been quite realistic.

The large numbers of passengers that vendors later estimated were being diverted to their airline owners' flights by travel agents equipped with their CRSs, however, would almost certainly have affected their aircraft investment decisions and thus the cost of transporting these additional passengers. If so, the 80 percent figure may overestimate the financial benefit to an airline from the diversion of large numbers of passengers from competitors' flights to its own flights through the CRS. Thus, while we employ vendors' own estimates of the fraction of these increased passenger revenues, we also examine the sensitivity of the resulting estimates to more conservative estimates of this fraction.

In preparing our estimates of this financial benefit from ownership of a CRS, we have relied upon the vendor airlines' internal estimates of the value of incremental revenues contributed by their respective CRSs. These estimates were prepared using a variety of methods, including comparisons of passenger booking patterns between non-automated and CRS-equipped travel agents, analyses of changes in booking patterns accompanying agents' conversion from use of a competing CRS, and complex statistical procedures designed to measure the effect of favorable ranking of vendors' flights in CRS screen displays on travelers' choices among airlines.

In Chapter V, we present our estimates of the size of the halo effect for each CRS vendor in 1986. Our estimates suggest that the halo effect in 1986 may have been larger than what was estimated by the vendors, even after controlling for the effect of airline market presence and the payment of override commissions by vendor airlines. Nevertheless, for the purposes of consistency with the other benefits of CRS ownership, we have relied upon the vendors' own estimates of the size of the incremental revenues generated from display bias and the halo effect.

Various estimates of the incremental revenues accruing to CRS-owning airlines can be constructed. During the period when CRSs were initially developed, it was reasonable for a vendor airline to assume that travel agents who did not subscribe to its system would instead remain non-automated. Most vendors made this assumption in their internal analyses. Under this assumption, a vendor's incremental revenues are measured by the difference in passenger revenue booked on its flights between agents equipped with its own CRS and travel agents that do not employ a CRS.

In the current environment, it is more reasonable to assume that a travel agent not equipped with any specific CRS would instead choose to employ a competing system rather than remain non-automated. In this situation, the relevant measure of incremental revenues accruing to any particular CRS-owning airline is based on the difference between passenger bookings on its flights by agents equipped with its own system and those utilizing competing CRSs. This measure would exceed any estimate that was based on agents remaining non-automated, since it would include both the increased passenger bookings it receives from travel agents equipped with its CRS and the revenues it would lose to rival CRS vendor airlines.

Because we measure the effects of CRS display bias and halo using changes in booking patterns from those produced by non-automated travel agents, the resulting contributions of CRSs to the "profitability" of their airline owners cannot be precisely determined. In effect, each system's estimated contribution represents the enhancement to the earnings of its owner airline's passenger-carrying operations, assuming that the booking patterns of subscribers to other system remain uninfluenced by that vendor's CRS.

Both the estimated contribution of each CRS to the earnings of its airline owner and the estimated returns on that airline's CRS investments reflect only this pro-host CRS influence. Where multiple airline-owned CRSs operate, however, this estimated contribution is offset to varying degrees by whatever bias and halo-generated influences on booking patterns are exercised by travel agents equipped with competing systems. Thus, the sum of each CRS's separate estimated contribution to the earnings of its host airline cannot be interpreted as an increase in the domestic airline industry's total earnings stemming from the existence of five airline-owned CRSs.

Similarly, it is improper to sum the cash flows generated by each of the five systems to estimate the return generated by the "CRS industry," since their simultaneous pro-host influences on their respective subscribers' booking patterns would to varying degrees offset one another. Nor can these estimates of the financial benefits of CRS ownership be used to determine the value of any particular system to potential non-airline owners if vendors were required to divest their systems, since a non-airline company could derive no incremental airline passenger revenues from its ownership of a CRS.

D. Technical Difficulties in Measuring Financial Benefits of CRS Ownership

The economic rate of return on an investment is defined as the discount rate at which the present value of the sequence of future returns it produces (net of each future year's outlays) equals the initial investment outlay, or the present value of total investment outlays if made over multiple years.[10] Because the cash outlays required by an investment and the cash it generates represent the funds that a firm has available for alternative investment opportunities or other purposes, both the capital outlays required and the subsequent net returns generated by an investment are measured as actual cash flows to determine the economic rate of return it earns.

Using the information provided by vendors, it is also possible to compute conventional accounting measures of the rates of return earned by vendors on their CRS investments during any single year. However, the economic return earned by an investment over its lifetime and its annual accounting profits per dollar of invested capital during any year of that lifetime -- the usual measure of the accounting rate of return on investment -- are not equivalent. Neither the accounting rate of return earned by an investment during any single year (or period of the investment's lifetime), nor any measure summarizing those annual returns (such as their average), necessarily corresponds to the true economic rate of return that investment earns. Although these two measures are likely to display some correspondence, their definitions and measurement methods do not establish a predictable relationship between them.[11]

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[10] The value of a firm -- and thus the market's assessment of its anticipated economic performance -- is based on the discounted present value of the future economic earnings that investors expect it to generate, rather than on accounting statements of its profitability. Thus, the market valuation of an investment, such as an airline CRS, should reflect the economic returns investors expect it to generate, as well as the risks in realizing those returns, and could in theory be relied upon as an indirect measure of its profitability. However, the various inconsistencies between economic and accounting definitions of profitability, together with differences in accounting conventions and formats, may make it difficult for investors to determine the economic returns a firm is generating, and thus to anticipate its future economic profitability. This problem is compounded in evaluating the profitability of a single activity conducted by a firm that engages in a number of related enterprises.

[11] A particularly forceful presentation of this point, as well as of its consequences for using firms' reported profitability to assess the reasonableness of prices they charge, is offered by Franklin M. Fisher and John J. McGowan, "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits," American Economic Review," March 1983, 82-97.

Accounting and economic measures of return on investment differ for a number of reasons. Conventional accounting practices, for example, fail to recognize that certain outlays, such as those for product development or marketing, represent investments that generate returns over a number of years rather than simply during the year in which they are made. As a result, accounting measures generally overstate current expenses by including among them some outlays that should properly be amortized over multiple periods. This practice often leads analysts to underestimate both current profits and the value of investments. The relationship of the conventional accounting measure of return on investments in tangible capital to the underlying economic return earned on the properly measured total investment depends on a variety of factors, and cannot be determined in advance.[12]

Although this source of divergence between accounting and economic measures of an investment's profitability is remediable, another more important source is generally not. Current profits are generated in part by investments that because of arbitrarily chosen depreciation practices are partially or completely excluded from the measure of invested capital to which profits are compared. At the same time, the value of total investment invariably includes significant outlays that, because of their newness, have not yet contributed to current-year profits.

As a consequence, neither the amount nor the timing of current accounting profits is correctly attributed by conventional accounting practices to the properly valued specific investment outlays that generated them. Comparing investment outlays over the lifetime of a project to the magnitude and time pattern of returns they generate over that lifetime, which is exactly what the economic or internal rate of return does, but which accounting rates of return cannot easily be made to do, provides the most accurate measure of that investment's profitability.[13]

Regardless of whether economic or financial definitions of return on an investment are employed, there are also other reasons why comparable profitability measures for the different airline-owned CRSs are difficult to compute. Similar firms operating within the same industry have the discretion to adopt different but equally acceptable accounting practices, and these differences can contribute to variation in accounting profits and rates of return reported by firms that are actually earning identical economic returns. The definition and measurement of revenues and expenses reported by the different airline vendors reflect their exercise of this discretion, and require their reported data to be adjusted in various ways to develop consistent measures of the returns earned on their CRS activities, a process subject to potential errors of misclassification. Finally, the Department's Information Directive required the vendors to allocate certain costs (such as those for central computer operations) between airline and CRS operations, a procedure that is somewhat arbitrary.

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[12] The differences between economic and accounting concepts related to profitability, and their relationship to the different purposes served by accounting and economic data, are clearly articulated in George J. Benston, "Accounting Numbers and Economic Values," The Antitrust Bulletin, Spring 1982, 161-215.

[13] This point is addressed in Franklin M. Fisher, "The Misuse of Accounting Rates of Return: Reply," American Economic Review, June 1984, 509-517.

E. The Financial Benefits Of Airlines' CRS Investments

Despite these complications, it is possible to estimate the financial benefits of the vendors' CRS-related investments. This section measures the economic rates of return earned by airlines on their historical and current CRS-related investments. These returns consist of yearly cash flows generated by each vendor's investment in and operation of its CRS, each system's contribution to the earnings of its parent airline, and the value of reservation services provided by each CRS to its airline owner. This analysis uses the financial accounts submitted by CRS vendors to measure the systems' cash flows and relies on internal studies conducted by the vendors to estimate their systems' contributions to the earnings of their respective airline owners.

Table 4.1 reports the cash flows generated by each airline CRS from the initial year for which information was reported by its vendor through 1986. Table 4.1 does not provide the vendors' cash flows in a typical format. Rather, to make it easier for the reader to follow the discussion, we have chosen to provide an abbreviated version of a typical cash-flow statement, although the net cash flow figures presented in Table 4.1 and used in calculating the financial benefits of CRS ownership are virtually identical to those that can be derived using more conventional accounting procedures.

As the table indicates, United's APOLLO and American's SABRE were the earliest systems to begin commercial operation. Both vendors received their initial revenues during 1976, although United reported making investments to develop APOLLO during 1975. TWA's PARS system became commercially operational in 1978 (although the airline submitted information covering only the 1980 to 1986 period), while the Texas Air Corporation's SYSTEMONE (formerly Eastern Air Lines' SODA system) and Delta's DATAS II began commercial operation in 1982. (Again, Eastern's initial investments in developing SODA were apparently made during 1981, but no revenue was received until 1982.)

As Table 4.1 indicates, during the pre-CAB rule period, cash revenues received by each system consisted chiefly of fees charged to subscribers (primarily travel agents) for equipment installation and servicing, training and support, and supplemental business services (primarily accounting and reservations record-keeping). Although booking fees charged to airlines and other participants (participant fees) in these systems had already become significant sources of revenue by the time the CAB rules took effect, they became the dominant revenue sources during 1985 and 1986, as vendors raised

Table 4.1

Historical Cash Flows Generated by Airline Computer Reservation Systems
(Amounts In $Millions)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
						APOLLO						
Cash Revenues												
Participant Fees[1]	0.0	0.0	0.0	0.0	0.0	3.9	9.3	21.2	51.9	68.1	152.6	174.4
Subscriber Fees	0.0	0.2	1.6	4.7	10.3	20.0	33.3	43.8	52.0	73.0	78.8	97.5
Total Cash Revenues	0.0	0.2	1.6	4.7	10.3	24.0	42.6	64.9	103.9	141.1	231.4	271.9
Cash Expenditures												
Operating Expenses	0.2	0.4	1.1	4.8	6.4	15.7	23.8	34.4	39.9	43.0	53.6	68.6
Equipment Investments	0.4	0.4	2.5	7.0	4.2	23.8	21.4	11.9	34.9	44.0	64.0	46.7
Development Expenses[2]	1.0	1.8	1.2	1.8	2.8	4.0	6.2	9.5	8.6	17.3	13.1	17.4
Subscriber Network[3]	0.2	0.7	3.0	5.9	12.2	29.4	33.1	46.1	59.1	60.9	79.0	95.2
Total Cash Expenditures	1.7	3.4	7.9	19.4	25.7	72.9	84.5	101.9	142.6	165.2	209.8	227.8
Net Cash Flow[4]	(1.7)	(3.2)	(6.3)	(14.8)	(15.4)	(48.9)	(41.9)	(37.0)	(38.7)	(24.1)	21.6	44.0
						SABRE						
Cash Revenues												
Participant Fees[1]		0.0	0.0	0.0	0.0	15.4	23.5	21.7	46.7	86.6	199.1	230.9
Subscriber Fees		0.3	2.4	5.9	13.9	16.6	30.2	59.7	71.6	83.5	93.4	105.7
Total Cash Revenues		0.3	2.4	5.9	13.9	32.0	53.7	81.4	118.3	170.1	292.5	336.6
Cash Expenditures												
Operating Expenses		1.1	3.4	6.3	10.8	14.1	22.9	32.8	41.5	45.2	65.5	87.2
Equipment Investments		2.9	8.6	22.4	24.6	28.4	19.5	22.9	18.6	21.0	64.4	55.7
Development Expenses[2]		0.9	1.6	1.9	3.5	4.5	4.2	6.6	8.0	11.3	16.7	17.1
Subscriber Network[3]		1.7	4.7	8.2	15.2	21.3	25.8	33.8	44.7	53.6	78.7	92.6
Total Cash Expenditures		6.6	18.3	38.8	54.1	68.3	72.4	96.1	112.8	131.1	225.5	252.6
Net Cash Flow[4]		(6.3)	(15.9)	(32.9)	(40.2)	(36.3)	(18.7)	(14.6)	5.5	39.0	67.0	84.0

Table 4.1 (continued)

	1980	1981	1982	1983	1984	1985	1986
				PARS			
Cash Revenues							
Participant Fees[1]	0.0	0.1	2.3	8.1	14.7	45.9	52.8
Subscriber Fees	4.7	9.5	11.9	13.6	20.2	24.2	23.0
Total Cash Revenues	4.7	9.6	14.2	21.7	34.9	70.1	75.8
Cash Expenditures							
Operating Expenses	11.9	16.4	19.9	24.6	32.1	37.0	45.5
Equipment Investments	29.9	9.1	14.0	13.8	15.3	7.3	11.9
Development Expenses[2]	NR	NR	NR	NR	NR	NR	NR
Subscriber Network[3]	10.7	6.9	4.7	6.0	6.2	10.8	11.5
Total Cash Expenditures	52.5	32.4	38.6	44.4	53.6	55.1	68.8
Net Cash Flow[4]	(47.8)	(22.8)	(24.5)	(22.7)	(18.7)	15.0	7.0
				SYSTEMONE			
Cash Revenues							
Participant Fees[1]		0.0	0.8	2.7	5.6	20.4	56.1
Subscriber Fees		0.0	2.2	7.5	14.9	20.6	32.4
Total Cash Revenues		0.0	3.0	10.2	20.5	40.9	88.5
Cash Expenditures							
Operating Expenses		0.0	2.9	6.6	7.4	13.5	22.9
Equipment Investments		0.3	6.1	26.5	24.6	24.5	21.8
Development Expenses[2]		NR	NR	NR	NR	NR	NR
Subscriber Network[3]		0.2	2.5	6.8	12.4	18.9	33.1
Total Cash Expenditures		0.5	11.5	39.5	44.4	56.9	77.7
Net Cash Flow[4]		(0.5)	(8.5)	(29.3)	(23.9)	(16.0)	10.8

Table 4.1 (continued)

	1982	1983	1984	1985	1986
			DATAS II		
Cash Revenues					
Participant Fees[1]	0.1	1.0	2.7	13.3	19.2
Subscriber Fees	0.3	5.0	11.7	22.6	28.0
Total Cash Revenues	0.4	6.0	14.4	35.9	47.2
Cash Expenditures					
Operating Expenses	1.8	6.7	11.3	13.2	15.8
Equipment Investments	12.1	16.6	30.8	18.4	15.9
Development Expenses[2]	6.8	8.1	9.9	6.8	6.7
Subscriber Network[3]	0.9	5.7	11.4	21.9	23.5
Total Cash Expenditures	21.6	37.1	63.4	60.2	61.8
Net Cash Flow[4]	(21.3)	(31.1)	(49.0)	(24.3)	(14.6)

Source: Reported by CRS vendors in response to USDOT Information Directive, Items 12 to 17.

1. Includes booking fees and charges for sales of marketing data and other CRS-generated products to participants.

2. Includes computer programming, software acquisition, and other expenses for developing the capacity to generate and store computerized reservation records.

3. Includes expenditures for marketing CRS services to current and prospective subscribers, installing and servicing equipment at subscriber locations, and training and supporting subscriber personnel.

NR indicates that the data were not identifiable or not reported as a separate expense category.

4. The cash flow computations shown in Table 4.1 differ from the conventional accounting method in two ways. First, the normal accounting computation of cash flow includes depreciation among operating expenses, but subsequently "adds back" its value to net income, thus implicitly recognizing that depreciation is not a cash expense. In contrast, the computations shown in Table 4.1 do not include depreciation among the expenses reported, so that it is not necessary to follow this procedure. Second, Table 4.1 includes equipment investments and other capital outlays directly as cash expenses, rather than following the conventional accounting procedure of deducting capital expenditures from net income to determine cash flow.

booking fees in response to the CAB's 1984 rules. Some vendors also reported revenues from the sale of marketing data and other CRS-generated products to other airlines, although this appears to be a small and sporadic source of income.

Table 4.1 classifies vendors' CRS-related cash outlays during this period into four major categories, the first of which includes expenses for operating the computer and communications systems used to create and store passenger reservation records. Second, vendors make substantial outlays for central computer facilities, communications equipment, and the terminals, ticket printers, and ancillary equipment they supply to their travel agent subscribers. Third, CRS development expenses include the costs of developing and acquiring the computer software that enables travel agents to generate, store, and modify passenger reservation records (CRS Development Expenses were not identifiable as a separate expense category for PARS and SYSTEMONE). Finally, subscriber network expenses include those for marketing CRS systems to potential users, installing and servicing equipment at subscriber locations, and training and supporting travel agents in the use of the systems.

During the early years of each system's operation as a commercial enterprise, many of these expenses were incurred jointly with its vendor's development and operation of an internal computerized reservations system. As a consequence, vendors' expenses associated with their commercial CRS activities have been estimated by allocating joint outlays (particularly those for central computer facilities, computer programming, and communications networks) between internal airline purposes and CRS operations. The vendors appear to have made careful efforts to perform these allocations, and no attempts have been made to adjust their reported expenses other than to assign them to the four categories of CRS-related expenses that are reported in Table 4.1.

As the table indicates, estimated cash flows generated by the five airline CRS systems during the pre-rule period were predominantly negative, with only a single vendor, SABRE, reporting positive cash flows before 1984. In late 1984, most vendors raised their booking fees, producing the substantial increases in CRS cash revenues reported in Table 4.1. Thus, despite major increases in their cash outlays for equipment investments and marketing of their systems to potential new subscribers during 1985 and 1986, only Delta

Airlines' DATAS II system failed to generate positive cash flows during those years.[14]

During the pre-CAB rule period, the primary return on vendors' CRS investments apparently consisted of their contributions to the earnings of their owners' airline operations. Greater airline revenues and earnings stemmed from the combined effect on passengers' choices among carriers of CRS display bias and travel agents' increased tendency to book passengers on flights operated by the airline owning the CRS to which they subscribe, often referred to as a halo effect.[15] Table 4.2 reports estimates of the contributions made by each reservation system to the earnings of its respective vendor-owner's airline operations through 1986. These contributions are estimated from measures of airline passenger revenue sold through CRSs, and vendors' estimates of the fraction of this figure that is attributable to bias in CRS screen displays and each system's halo effect on its subscribers' sales patterns.

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[14] Table 4.1 does not follow the normal accounting procedure of deducting a provision for income taxes in determining the cash flows generated by airline-owned CRSs. This omission has an extremely complicated effect on estimated cash flows and their associated rates of return. First, most CRSs generated negative accounting profits through 1984, since booking fees were not raised to current levels until after the CAB rules went into effect in November of that year. By themselves, these systems would not have increased the income tax liability of their airline owners during that period, and probably would have reduced it. As Table 4.2 indicates, however, these systems apparently contributed substantially to the earnings -- and thus presumably to the tax liability -- of their airline owners at the same time.

After 1984, most CRSs were profitable on a tax-accounting basis, while they also continued to contribute to the financial benefits received by their airline owners. Some airlines also began to operate their CRSs as independent subsidiaries during this time, so that their income tax liability was determined independently. Nevertheless, such a system's net effect on the overall tax liability of the two enterprises still consists of the sum of its independently determined tax liability, plus any increase in its host airline's tax liability stemming from whatever improvement in the latter's profitability is contributed by the CRS. Because of the extremely complex nature of this net effect, we have not attempted to estimate the effect of tax considerations on their cash flows and associated rates of return.

[15] Although the 1984 CAB rules sought to eliminate display bias, these rules did not seek to reduce or eliminate the halo effect on CRS-equipped travel agents' booking patterns. Any such effect results from the maintenance of ongoing, mutually supportive business relationships between a vendor and its travel agent subscribers. Such relationships, and their associated effect on sales patterns, are common in industries characterized by strong "vertical" linkages between producers of a product and its distributors or retailers.

Where it was not reported by vendors, the historical pattern of passenger revenue sales through CRSs was estimated using measures of this figure for 1986 and historical growth in the number of travel agency locations reported by vendors in their responses to the DOT Information Directive. Because vendors probably automated their largest revenue-producing agencies first, this procedure may understate subscriber activity that was subject to bias and halo effects during the early years of each CRS's operation and, as a result, its contribution to the financial benefits received by its airline owner during that period. Because the cash flows generated by a CRS during these early years have a pronounced effect on its estimated rate of return, this procedure produces conservative estimates of the effect on those rates of return of including CRSs' contributions to the earnings of their vendor airlines.[16]

The magnitude of display bias and halo effects indicated in Table 4.2 are derived from internal documents submitted by each vendor. Appendix III provides a discussion of the methods used to construct estimates of incremental revenue generated by each system's display bias and halo effect from information submitted by its vendor airline.

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[16] Recently, representatives of American and United have argued that a substantial fraction of the estimated ticket revenue reportedly sold through CRS-equipped travel agents represents tickets purchased at travel agencies by passengers who initially booked reservations directly through these airlines' sales outlets. These sales, they argue, are not subject to pro-host bias or halo effects, since their purchasers' behavior reveals that they have already decided to travel on those airlines. However, this practice does not affect the accuracy of our estimates of incremental revenues, since these were constructed from vendors' own studies of the fraction of total revenues sold through their CRSs that represented incremental revenues. Appendix III provides a detailed discussion of this issue.

The CRS vendor airlines' own estimates reflect their belief that these increased passenger volumes raised their airline earnings substantially. The most common estimate contained in documents submitted by vendors appears to be that 80 percent of increased revenues stemming from display bias and any halo effect was translated into increased airline earnings, reflecting vendors' implicit assessment that the additional passengers resulting from these effects are accommodated with relatively minor expansion of flight schedules.[17]

Because of the critical nature of this assumption, the table also reports the magnitude of these contributions under the more conservative assumption that only 40 percent of bias- and halo-generated passenger revenue was translated into higher airline earnings. However, even the 40 percent figure may represent an overestimate of the fraction of incremental revenues that was ultimately translated into higher airline earnings. Accommodating large additional passenger volumes almost surely entailed additional operating expenses by CRS-owning airlines that were closer to their actual average cost per passenger carried than to the much lower figures that are implicit in the assumption that 80 percent, or even 40 percent, of incremental revenues represented additional airline earnings. To reflect this possibility, Table 4.2 also reports the estimated effects of CRSs on their parent airline earnings assuming that the same percentage of CRS-generated incremental revenues was ultimately reflected in operating earnings as was the case for all sources of airline revenue combined. For most CRS vendors, this amounted to assuming that three to six percent of

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[17] See, for example, "Marketing Automation Economics," August 1983, document submitted by American Airlines in response to DOT Information Directive, Item 20, 20-0002 to 20-0023, for use of the 80 percent figure, and "S.O.D.A. Revenues," October 18, 1985, document submitted by Eastern Air Lines in response to DOT Information Directive, Item 20, 50-51, which applies a figure of 70 percent to incremental revenues to estimate incremental profits. The 80 percent figure was used by TWA in considering capital appropriation requests for expansion of PARS and to evaluate the possible sale of PARS to NIBS, Documents TWA 20-1 through 20-3, 20-6, 20-7, and 20-13. For a discussion and references to vendors' use of the 80 percent figure, see Civil Aeronautics Board, Notice of Proposed Rulemaking, EDR-466C, 49 FR11644, March 27, 1984, 11650.

Table 4.2

Estimated Financial Contributions of Computer Reservation System to Owner Airline
Using Vendor Estimates of Bias and Halo Effect
(Amounts in $Millions)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
APOLLO											
Airline Passenger Revenue[1]	2200.4	2458.9	2984.7	2751.0	3743.9	3837.2	4012.8	4538.8	5198.7	4258.6	5086.5
Percent Sold Through APOLLO[2]	0.8%	1.9%	3.8%	6.0%	13.3%	18.5%	22.6%	26.2%	29.8%	35.6%	39.0%
Revenue Sold Through APOLLO	17.6	46.7	113.4	165.1	497.9	709.9	906.9	1189.2	1549.2	1516.1	1983.7
% Attributable to Bias & Halo[3]	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	14.9%	13.8%	13.8%
Revenue from Bias and Halo	2.7	7.1	17.4	25.3	76.2	108.6	138.8	181.9	230.8	209.2	273.8
CRS Contribution to Owner Airline:											
@ 80% of Bias & Halo Revenue	2.2	5.7	13.9	20.2	60.9	86.9	111.0	145.6	184.7	167.4	219.0
@ 40% of Bias & Halo Revenue	1.1	2.9	6.9	10.1	30.5	43.4	55.5	72.8	92.3	83.7	109.5
@ 5.1% of Bias & Halo Revenue[4]	0.1	0.4	0.9	1.3	3.9	5.5	7.1	9.3	11.8	10.7	14.0
SABRE											
Airline Passenger Revenue[1]	1548.4	1756.0	2035.3	2383.4	2741.0	3138.0	3156.2	3603.0	4034.6	4584.8	4488.4
Percent Sold Through SABRE[2]	0.0%	3.6%	7.3%	12.2%	18.4%	29.8%	35.0%	41.0%	41.8%	40.0%	39.2%
Revenue Sold Through SABRE	0.0	63.2	148.6	290.8	504.3	935.1	1104.7	1477.2	1686.4	1833.9	1759.5
% Attributable to Bias & Halo[5]	0.0%	23.7%	23.7%	23.7%	23.7%	23.7%	23.7%	23.7%	21.0%	15.0%	15.0%
Revenue from Bias and Halo	0.0	15.0	35.2	68.9	119.5	221.6	261.8	350.1	354.2	275.1	263.9
CRS Contribution to Owner Airline:											
@ 80% of Bias & Halo Revenue	0.0	12.0	28.2	55.1	95.6	177.3	209.4	280.1	283.3	220.1	211.1
@ 40% of Bias & Halo Revenue	0.0	6.0	14.1	27.6	47.8	88.6	104.7	140.0	141.7	110.0	105.6
@ 5.6% of Bias & Halo Revenue[4]	0.0	0.8	2.0	3.9	6.7	12.4	14.7	19.6	19.8	15.4	14.8

Table 4.2 (continued)

	1980	1981	1982	1983	1984	1985	1986
				PARS			
Airline Passenger Revenue[1]	2003.0	2030.5	1826.1	1729.7	1830.5	1851.1	1768.4
Percent Sold Through PARS[2]	13.2%	16.3%	19.6%	25.3%	29.4%	32.3%	34.6%
Revenue Sold Through PARS	263.8	330.6	358.5	437.2	537.7	598.2	611.9
% Attributable to Bias & Halo[6]	11.8%	11.8%	11.8%	11.8%	11.8%	11.8%	11.8%
Revenue from Bias and Halo	31.1	39.0	42.3	51.6	63.5	70.6	72.2
CRS Contribution to Owner Airline:							
@ 80% of Bias & Halo Revenue	24.9	31.2	33.8	41.3	50.8	56.5	57.8
@ 40% of Bias & Halo Revenue	12.4	15.6	16.9	20.6	25.4	28.2	28.9
@ 0% of Bias & Halo Revenue[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				SYSTEMONE			
Airline Passenger Revenue[1]		2003.2	3293.5	3514.3	3818.0	4197.8	3860.4
Percent Sold Through SYSTEMONE[2]		0.0%	2.6%	6.7%	9.9%	13.6%	17.0%
Revenue Sold Through SYSTEMONE		0.0	85.9	236.6	379.2	573.0	656.3
% Attributable to Bias & Halo[7]		9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
Revenue from Bias and Halo		0.0	7.8	21.5	34.5	52.1	59.7
CRS Contribution to Owner Airline:							
@ 80% of Bias & Halo Revenue		0.0	6.3	17.2	27.6	41.7	47.8
@ 40% of Bias & Halo Revenue		0.0	3.1	8.6	13.8	20.9	23.9
@ 3.2% of Bias & Halo Revenue[4]		0.0	0.3	0.7	1.1	1.7	1.9

Table 4.2 (continued)

	1982	1983	1984	1985	1986
			DATAS II		
Airline Passenger Revenue[1]	3247.1	3493.9	3982.6	4143.8	3923.9
Percent Sold Through DATAS II[2]	1.5%	8.4%	14.2%	17.7%	17.8%
Revenue Sold Through DATAS II	50.2	293.8	566.4	734.4	698.5
% Attributable to Bias & Halo[8]	10.0%	10.0%	10.0%	10.0%	10.0%
Revenue from Bias and Halo	5.0	29.4	56.6	73.4	69.8
CRS Contribution to Owner Airline:					
@ 80% of Bias & Halo Revenue	4.0	23.5	45.3	58.7	55.9
@ 40% of Bias & Halo Revenue	2.0	11.8	22.7	29.4	27.9
@ 4.1% of Bias & Halo Revenue[4]	0.2	1.2	2.3	3.0	2.9

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1. Revenue from scheduled domestic passenger service only. Source: "Air Carrier Financial Statistics," CAB and DOT, various issues.

2. Estimated from data reported by CRS vendors in response to USDOT Information Directive, Items 2 and 6.

3. Estimated from "Automation-Impact on Agency Shares," document provided by United Airlines in response to USDOT Information Directive, Item 20, 5163-5199. See Appendix III for further discussion.

4. Average actual percent of airline's domestic passenger revenue that was ultimately translated into airline operating profit over the period since its CRS became commercially operational. Source: "Air Carrier Financial Statistics," CAB and USDOT, various issues.

5. Estimated from documents provided by American Airlines in response to USDOT Information Directive, Item 20, 20-0016 to 20-0017. See Appendix III for further discussion.

6. Estimated from "Statistical Analysis of Agency Automation Efforts," February 1979, May 1981, and May 1982, and "Value of 'Halo' Bias: Top Thirty Districts," 1st and 2nd Quarters, 1985, documents provided by TWA in response to USDOT Information Directive, Item 20, documents 20-16, 20-17, 20-19, and 20-21. See Appendix III for further discussion.

7. Estimated from "Exhibit II: S.O.D.A. Revenues," document provided by Eastern Airlines in response to USDOT Information Directive, Item 20-1, 00025-00064.

8. Estimated from "Halo Effect," memo from Systems Manager, Information Services to Assistant Vice-President, Information Services, January 8, 1986, document provided by Delta Airlines in response to USDOT Information Directive, Item 20, 20001-20002. See Appendix III for further discussion.

incremental revenues was translated into increased airline operating earnings during most years, as the figures reported in Table 4.2 suggest.[18]

As Table 4.2 indicates, the contributions of these systems to the airline operating earnings of their owners during the pre-rule period may have been extremely large, perhaps approaching as much as $200 million during some years for APOLLO and SABRE. Even under the more conservative assumption that 40 percent of incremental revenues was ultimately retained as increased earnings, these revenues are more than sufficient to offset the negative cash flows reported in Table 4.1 in all but the earliest years of each system's operation as a commercial enterprise.

Because they rely on documentation submitted by the vendors, the higher values are consistent with vendors' own estimates of the financial benefits of these systems to their respective airlines during this period. Nevertheless, the lower range of values reported in the table may represent a more realistic appraisal of the systems' contributions to the earnings of their airline owners.

Table 4.3 illustrates the process used to impute the additional income for each vendor's use of its own system's reservation services, which we measure by the booking fees its vendor airline would have paid as a participant in its own CRS. This additional income is estimated by multiplying the average revenue received per booking from its airline participants by the total number of bookings for travel on the vendor airline's flights generated by travel agents who subscribe to its CRS. The imputed value of CRS services used by their airline owners increases the estimated CRS cash flows

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[18] This procedure corresponds to that suggested in testimony on the proper measurement of reduced profits stemming from traffic losses by non-CRS owning airlines in then pending lawsuits against American and United. Specifically, American's expert witness states that, "The true incremental profit ... is best approximated as the difference between average total revenue per passenger and average cost for: flying operations, maintenance, passenger service, aircraft and traffic servicing, depreciation and amortization, and promotion and sales [expenses]." For two non-CRS owning airlines claiming lost profits, American's witness calculates that these expenses ranged from 81 percent to 98 percent of average total revenue per passenger during the period 1980 to 1986, suggesting that incremental profit per additional passenger would have amounted to between two percent and 19 percent of incremental revenue. However, the corresponding figures for some CRS-owning airlines would probably have fallen toward the upper end of this range, since they operated somewhat more profitably during this period than did the two non-CRS owning carriers for which these figures were calculated. See Identification of Peter Max as Expert Witness for Defendant American Airlines, Inc., In Re Air Passenger Computer Reservation Systems Antitrust Litigation, Master File No. MDL 667 ER (Tx), United States District Court for the Central District of California, 37.

Table 4.3

Estimated Value of Booking Services Provided to Vendor Airlines by Computer Reservation Systems

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
United Bookings by APOLLO												
Subscribers (Millions)	NR	NR	NR	NR	NR	5.8	7.3	9.3	12.8	21.7	19.6	25.1
Average Booking Fee ($)[1]	NR	NR	NR	NR	NR	0.14	0.21	0.35	0.65	1.18	1.85	1.85
Value to United ($ Millions)	0.0	0.0	0.0	0.0	0.0	0.8	1.5	3.3	8.3	25.5	36.3	46.4
American Bookings by SABRE												
Subscribers (millions)		NR	NR	NR	NR	4.3	4.9	6.6	8.9	9.8	16.6	19.2
Average Booking Fee ($)[1]		NR	NR	NR	NR	0.44	0.37	0.26	0.48	0.84	1.87	1.84
Value to American ($ Millions)		0.0	0.0	0.0	0.0	1.9	1.8	1.7	4.3	8.2	31.0	35.2
TWA Bookings by PARS Subscribers (millions)						NR	NR	NR	NR	NR	3.5	3.5
Average Booking Fee ($)[1]						0	0.24	0.40	0.55	0.67	1.76	1.75
Value of Bookings to TWA ($ Millions)						0.0	0.0	0.0	0.0	0.0	6.2	6.1
Eastern Bookings by SYSTEMONE Subscribers (millions)							NR	NR	1.6	4.7	6.8	9.3
Average Booking Fee ($)[1]							NR	NR	1.22	0.68	1.03	2.07
Value of Bookings to Eastern ($ Millions)							0.0	0.0	2.0	3.2	7.0	19.2
Delta Bookings by DATAS II Subscribers (millions)								0.1	1.1	2.6	3.7	4.2
Average Booking Fee ($)[1]								0.72	0.24	0.28	0.99	1.14
Value of Bookings to Delta ($ Millions)								0.1	0.3	0.7	3.6	4.8

Source: Computed from data reported by CRS vendors in response to USDOT Information Directive, Items 3, 4, and 12.

[1] Actual average booking fee paid by airline participants; derived from airline booking revenue divided by total bookings on participating airlines. NR indicates that one or both of these data items was not reported.

reported in Table 4.1 by its full amount, since the expenses for producing host-utilized reservation services were already included among the CRS cash expenses reported in that table.[19] As Table 4.3 indicates, this imputed income adds significantly to the cash flows generated by most CRS systems.[20]

Table 4.4 combines the three sources that together make up the cash flows to vendors generated by CRSs: (1) the cash flows resulting from CRS fee revenues and expenses (Table 4.1); (2) the estimated annual additions made by each system to the earnings of its airline owner (Table 4.2); and (3) the imputed values of the reservation services each CRS supplies to its airline owner (Table 4.3). The result is an estimate of the cash flow generated by each airline's investment in its CRS during each year of its lifetime through 1986. In contrast to the cash flows reported in Table 4.1, total cash flow would have been positive for most systems before 1984, ranging from at least $100 million to perhaps as high as $250 to $350 million for the two largest systems during 1986, if the vendors were correct in their assumption that 80 percent of incremental revenues became potential airline earnings.

Table 4.4 also reports an estimate of the remaining value of the physical equipment assets of each system (computer and communications equipment and facilities) at the end of 1984 and 1986. These estimates are constructed from the vendors' cumulative reported investment outlays from each system's initial year through 1984 or 1986, less accumulated depreciation on equipment and other physical assets reported during the same time period. The residual value of each system's physical assets enters the computation of economic rates of return on CRS investments because it is assumed to represent a supplemental cash inflow that occurs during the last year under consideration, exactly as if these assets were sold for their depreciated value at that time. No attempt has been made to estimate or include the value of intangible assets accumulated by these systems, such as their networks of trained subscribers or the ongoing value of their CRS enterprises.

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[19] These savings also reflect any economies in producing reservation services jointly for internal use and external sale, although it is difficult to determine whether such economies are significant. In effect, this procedure includes any savings to its airline owner from acquiring those reservation services generated by subscribers to its own system at the costs of producing them internally, rather than purchasing them from another vendor at prices that may exceed those costs.

[20] Table 4.3 also indicates that some vendors failed to report bookings by subscribers on their own flights for early years of their systems' operation. However, the value imputed to these bookings using the procedure adopted in Table 4.3 would have been minimal. In early years, "low" booking fees may have been a "subsidy" the vendors incurred to keep other carriers in their systems so that travel agents would subscribe to them. Nevertheless, because we have assigned a zero value for these years, Table 4.3 probably understates the value of the CRS services provided to the vendor's airline operations.

Table 4.4

Estimated Total Cash Contributions Generated by Airline Computer Reservation Systems
(Amounts In $Millions)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
						APOLLO						
Net CRS Cash Flow	(1.7)	(3.2)	(6.3)	(14.8)	(15.4)	(48.9)	(41.9)	(37.0)	(38.7)	(24.1)	21.6	44.0
CRS Contribution to Owner Airline:												
@ 80% of Bias & Halo Revenue	0.0	2.2	5.7	13.9	20.2	60.9	86.9	111.0	145.6	184.7	167.4	219.0
@ 40% of Bias & Halo Revenue	0.0	1.1	2.9	6.9	10.1	30.5	43.4	55.5	72.8	92.3	83.7	109.5
@ 5.1% of Bias & Halo[1]	0.0	0.1	0.4	0.9	1.3	3.9	5.5	7.1	9.3	11.8	10.7	14.0
Imputed Value of CRS Services to Host Airline	0.0	0.0	0.0	0.0	0.0	0.8	1.5	3.3	8.3	25.5	36.3	46.4
Total Cash Contribution:												
incl. 80% of Bias & Halo	(1.7)	(1.0)	(0.6)	(0.9)	4.8	12.9	46.5	77.3	115.2	186.1	225.3	309.4
incl. 40% of Bias & Halo	(1.7)	(2.1)	(3.4)	(7.8)	(5.3)	(17.6)	3.1	21.8	42.4	93.7	141.6	199.9
incl. 5.1% of Bias & Halo	(1.7)	(3.0)	(5.9)	(13.9)	(14.1)	(44.2)	(34.8)	(26.6)	(21.1)	13.2	68.6	104.4
Residual Asset Value[2]										92.4		140.7
						SABRE						
Net CRS Cash Flow		(6.3)	(15.9)	(32.9)	(40.2)	(36.3)	(18.7)	(14.6)	5.5	39.0	67.0	84.0
CRS Contribution to Owner Airline:												
@ 80% of Bias & Halo Revenue		0.0	12.0	28.2	55.1	95.6	177.3	209.4	280.1	283.3	220.1	211.1
@ 40% of Bias & Halo Revenue		0.0	6.0	14.1	27.6	47.8	88.6	104.7	140.0	141.7	110.0	105.6
@ 5.6% of Bias & Halo Revenue[1]		0.0	0.8	2.0	3.9	6.7	12.4	14.7	19.6	19.8	15.4	14.8
Imputed Value of CRS Services to Host Airline		0.0	0.0	0.0	0.0	1.9	1.8	1.7	4.3	8.2	31.0	35.2
Total Cash Contribution:												
incl. 80% of Bias & Halo Revenue		(6.3)	(3.9)	(4.7)	14.9	61.2	160.4	196.5	289.8	330.5	318.1	330.4
incl. 40% of Bias & Halo Revenue		(6.3)	(9.9)	(18.8)	(12.6)	13.4	71.8	91.8	149.8	188.9	208.0	224.8
incl. 5.6% of Bias & Halo Revenue		(6.3)	(15.1)	(30.9)	(36.3)	(27.7)	(4.5)	1.7	29.4	67.0	113.4	134.0
Residual Asset Value[2]										63.1		132.0

Table 4.4 (continued)

	1980	1981	1982	1983	1984	1985	1986
				PARS			
Net CRS Cash Flow	(47.8)	(22.8)	(24.5)	(22.7)	(18.7)	15.0	7.0
CRS Contribution to Owner Airline:							
@ 80% of Bias & Halo Revenue	24.9	31.2	33.8	41.3	50.8	56.5	57.8
@ 40% of Bias & Halo Revenue	12.4	15.6	16.9	20.6	25.4	28.2	28.9
@ 0% of Bias & Halo Revenue[1]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Imputed Value of CRS Services to Host Airline	0.0	0.0	0.0	0.0	0.0	6.2	6.1
Total Cash Contribution:							
incl. 80% of Bias & Halo Revenue	(22.9)	8.4	9.4	18.6	32.1	77.4	70.9
incl. 40% of Bias & Halo Revenue	(35.4)	(7.2)	(7.5)	(2.0)	6.7	49.4	42.0
incl. 0% of Bias & Halo Revenue	(47.8)	(22.8)	(24.5)	(22.7)	(18.7)	21.2	13.1
Residual Asset Value[2]					40.4		35.2
				SYSTEMONE			
Net CRS Cash Flow		(0.5)	(8.5)	(29.3)	(23.9)	(16.0)	10.8
Contribution to Owner Airline:							
@ 80% of Bias & Halo Revenue		0.0	6.3	17.2	27.6	41.7	47.8
@ 40% of Bias & Halo Revenue		0.0	3.1	8.6	13.8	20.9	23.8
@ 3.2% of Bias & Halo Revenue[1]		0.0	0.3	0.7	1.1	1.7	1.9
Imputed Value of CRS Services to Host Airline		0.0	0.0	2.0	3.2	7.0	19.2
Total Cash Contribution:							
including 80% of Bias & Halo Revenue		(0.5)	(2.2)	(10.1)	6.9	32.7	77.8
including 40% of Bias & Halo Revenue		(0.5)	(5.3)	(18.7)	(6.9)	11.8	53.9
including 3.2% of Bias & Halo Revenue		(0.5)	(8.2)	(26.6)	(19.6)	(7.4)	31.9
Residual Asset Value[2]					38.1		47.3

Table 4.4 (continued)

	1982	1983	1984	1985	1986
			DATAS II		
Net CRS Cash Flow	(21.3)	(31.1)	(49.0)	(24.3)	(14.6)
CRS Contribution to Owner Airline:					
@ 80% of Bias & Halo Revenue	4.0	23.5	45.3	58.7	55.9
@ 40% of Bias & Halo Revenue	2.0	11.8	22.7	29.4	27.9
@ 4.1% of Bias & Halo Revenue[1]	0.2	1.2	2.3	3.0	2.9
Imputed Value of CRS Services to Host Airline	0.1	0.3	0.7	3.6	4.8
Total Cash Contribution:					
including 80% of Bias & Halo Revenue	(17.2)	(7.3)	(2.9)	38.0	46.0
including 40% of Bias & Halo Revenue	(19.2)	(19.1)	(25.6)	8.7	18.1
including 4.1% of Bias & Halo Revenue	(21.0)	(29.6)	(45.9)	(17.7)	(7.0)
Residual Asset Value[2]			51.4		58.1

Sources: Tables 4.1, 4.2, and 4.3.

[1] Average actual percent of airline's domestic passenger revenue that was ultimately translated into airline operating profit over the period since its CRS became commercially operational. Source: "Air Carrier Financial Statistics," CAB and USDOT, various issues.

[2] Year-end remaining depreciable value of computer equipment only, estimated from equipment investment and depreciation reported by CRS vendors.

The vendors have continued to make large investments in developing and enhancing their reservation systems. In order to estimate the returns likely to be earned on these investments, we have attempted to project the cash flows that will be generated by the five airline CRSs during the period from 1987 to 1992.

In projecting these cash flows, we have made assumptions about trends in air travel and its distribution, CRS pricing, the vendors' market shares, and the costs the vendors incur to provide CRS services. Total domestic airline passenger travel is assumed to grow by 4.5 percent annually between 1987 and 1992, in accordance with the most recent FAA forecast, while each CRS vendor's share of domestic passenger travel is assumed to remain at its 1987 level. The fraction of domestic airline travel (measured by passenger segments flown) booked by CRS-equipped travel agents is assumed to continue rising (although considerably more slowly than in recent years) from its 1986 figure of 86.5 percent, reaching 90 percent by 1992. Thus, we foresee no major innovation in the channels through which domestic airline travel is distributed during the next five years. Consistent with this assumption, we also project that the number of domestic CRS-equipped travel agency locations will continue to grow slowly, from slightly under 25,000 in 1986 to approximately 30,000 by 1992.

In order to project revenues for each system during this period, we assume first that the five vendors' shares of travel agent subscribers and of passenger bookings will continue to change according to the trends that have prevailed since the composition of the industry stabilized at its present membership. Table 4.5 summarizes the projected 1992 CRS market shares of subscribers and passenger bookings and compares them to the actual shares prevailing during 1986 and 1987. Airline booking fees are projected to increase from the $1.85 currently charged by the largest vendors, reaching $2.00 by 1990 and remaining at that level through 1992, while non-airline booking fees are assumed to remain at their 1986 levels -- typically $2.00 to $3.00 per booking -- throughout this period. Similarly, the average annual revenue per subscriber received by each vendor, which ranged from roughly $8,000 to $12,000 during 1986, is projected to remain at that level through 1992.

Finally, we assume that vendors' investments in computer capacity, communications equipment, and remote terminals will rise over this period in proportion to increases in the number of bookings generated by each system. Expenses for operating and maintaining each CRS's computer facilities and communications network are also assumed to rise over this period in proportion to growth in its booking activity. Outlays for continuing development and enhancement of each system's capabilities are assumed to remain constant at the high levels that prevailed during 1985 and 1986, when vendors made major modifications and enhancements to their systems. Outlays for marketing each system are projected to increase over this period in proportion to growth in the total number of travel agents in the United States, reflecting the recently intensified competition among vendors to extend their subscriber networks by converting agents who subscribe to competing CRSs.

Table 4.5

Actual and Projected CRS Market Shares
of Travel Agents and Domestic Passenger Bookings

	Travel Agent Shares[1]			Booking Shares[2]		
CRS	1986	1987	1992	1986	1987	1992
SABRE	35.1%	34.0%	32%	41.3%	39.2%	38%
APOLLO	26.4%	24.5%	23%	32.9%	29.5%	27%
PARS	12.9%	14.5%	15%	10.1%	14.6%	15%
SYSTEMONE	17.3%	18.0%	20%	10.5%	11.3%	15%
DATAS II	8.3%	9.0%	10%	5.1%	5.4%	5%

Sources: Estimated from information reported by CRS vendors in response to USDOT Information Directive, Item 7; Travel Weekly, December 10, 1987; and letter of Michael A. Buckman, President, SABRE Travel Information Network, to Senator Howard Metzenbaum, Chairman, Subcommittee on Antitrust, Monopolies, and Business Rights, U.S. Senate, January 12, 1988.

1. Percent of travel agency locations.

2. Percent of passenger segments booked for domestic travel.

Tables 4.6, 4.7, and 4.8, which are analogous to Tables 4.1, 4.2, and 4.3, project each of the three components of CRS cash flows for the 1987 to 1992 period. Table 4.6 reports anticipated cash revenues, expenses, and the resulting net cash flows generated by the various CRS systems during this period, projected using the aforementioned assumptions regarding total booking activity, CRS market shares, booking and subscriber fees, and CRS expenses. As in Table 4.1, revenues consist of booking fees, other charges paid by participants for related products, and subscription fees paid by travel agents. Cash outlays include CRS operating expenses, equipment investments, product development outlays, and expenses for extending and servicing each system's network of subscribers. As Table 4.6 indicates, each of the five systems is projected to generate increasing cash flows over the 1987 to 1992 period, primarily due to the rapid increases in booking fee revenues that result from more passenger traffic and higher per-segment booking fees.

Table 4.6

Projected Cash Flows Generated by Airline Computer Reservation Systems (Amounts In $Millions)

	1987	1988	1989	1990	1991	1992
APOLLO						
Cash Revenues						
Booking Fees	173.4	191.2	205.1	224.3	238.4	252.0
Other Participant Revenues	2.0	2.0	2.0	2.0	2.0	2.0
Subscriber Fees	95.3	98.3	101.2	104.2	107.2	110.2
Total Cash Revenues	270.6	291.4	308.3	330.5	347.6	364.2
Cash Expenditures						
Operating Expenses	69.5	74.2	77.1	82.1	86.8	91.2
Equipment Investments	47.3	50.5	52.5	55.9	59.1	62.1
Development Expenses	17.4	17.4	17.4	17.4	17.4	17.4
Subscriber Network	95.6	98.6	101.6	104.6	107.6	110.6
Total Cash Expenditures	229.8	240.8	248.7	260.0	270.9	281.3
Net Cash Flow[1]	40.8	50.6	59.6	70.5	76.8	82.9
SABRE						
Cash Revenues						
Booking Fees	250.6	266.7	282.9	307.0	323.6	339.2
Other Participant Revenues	1.6	1.6	1.6	1.6	1.6	1.6
Subscriber Fees	105.5	105.6	105.6	105.5	105.1	104.5
Total Cash Revenues	357.7	373.9	390.1	414.1	430.3	445.3
Cash Expenditures						
Operating Expenses	91.4	96.8	99.6	105.2	110.5	115.4
Equipment Investments	58.4	61.8	63.6	67.2	70.6	73.7
Development Expenses	17.0	17.0	17.0	17.0	17.0	17.0
Subscriber Network	93.1	96.0	98.9	101.8	104.7	107.6
Total Cash Expenditures	259.9	271.5	279.0	291.2	302.7	313.7
Net Cash Flow[1]	97.8	105.6	117.6	133.0	141.3	149.3
PARS						
Cash Revenues						
Booking Fees	83.4	90.5	95.5	103.3	108.4	113.3
Other Participant Revenues	2.0	2.0	2.0	2.0	2.0	2.0
Subscriber Fees	22.7	23.4	24.1	24.8	25.5	26.2
Total Cash Revenues	108.1	115.9	121.6	130.1	136.0	141.5
Cash Expenditures						
Operating Expenses	46.4	49.1	50.6	53.4	56.1	58.6
Equipment Investments	12.1	12.8	13.2	13.9	14.6	15.3
Development Expenses	NR	NR	NR	NR	NR	NR
Subscriber Network	11.5	11.9	12.2	12.6	13.0	13.3
Total Cash Expenditures	70.1	73.8	76.0	80.0	83.7	87.2
Net Cash Flow[1]	38.1	42.1	45.6	50.1	52.3	54.3

Table 4.6 (continued)

	1987	1988	1989	1990	1991	1992
			SYSTEMONE			
Cash Revenues						
Booking Fees	70.0	74.2	82.2	87.0	97.8	102.4
Other Participant Revenues[2]	NR	NR	NR	NR	NR	NR
Subscriber Fees	35.5	37.6	39.8	42.1	44.4	45.6
Total Cash Revenues	105.4	111.8	122.0	129.0	142.2	148.0
Cash Expenditures						
Operating Expenses	29.5	31.3	34.6	36.6	41.2	43.0
Equipment Investments	28.1	29.8	33.0	34.8	39.2	41.0
Development Expenses	NR	NR	NR	NR	NR	NR
Subscriber Network	36.2	38.4	40.6	42.9	45.3	46.6
Total Cash Expenditures	93.9	99.4	108.3	144.4	125.7	130.5
Net Cash Flow[1]	11.5	12.3	13.7	14.6	16.4	17.4
			DATAS II			
Cash Revenues						
Booking Fees	24.5	30.1	31.8	34.4	36.2	37.8
Other Participant Revenues	2.0	2.0	2.0	2.0	2.0	2.0
Subscriber Fees	30.3	31.3	32.2	33.2	34.1	35.1
Total Cash Revenues	56.8	63.4	66.0	69.6	72.3	74.8
Cash Expenditures						
Operating Expenses	15.3	15.0	15.4	16.3	17.1	17.9
Equipment Investments	15.4	15.1	15.6	16.5	17.3	18.1
Development Expenses	10.0	10.0	10.0	10.0	10.0	10.0
Subscriber Network	23.6	24.3	25.1	25.8	26.5	27.3
Total Cash Expenditures	64.2	64.4	66.1	68.6	71.0	73.2
Net Cash Flow[1]	(7.4)	(1.1)	(0.1)	1.0	1.3	1.6

Source: Projected from data reported in Table 4.1, using assumptions described in text.

1. The cash flow computation shown in Table 4.6 differ from the conventional accounting method in two ways. First, the normal accounting computation of cash flow includes depreciation among operating expenses, but subsequently adds its value to arrive at net income, thus implicitly recognizing that depreciation is not a cash expense. In contrast, the computations shown in Table 4.6 do not include depreciation among the expenses reported, so that it is not necessary to follow this procedure. Second, Table 4.6 includes equipment investments and other capital outlays directly as cash expenses, rather than following the conventional accounting procedure of deducting capital expenditures from net income to determine cash flow.

2. SYSTEMONE did not sell marketing data and other CRS-generated products to participants.

Table 4.7

Projected Financial Contributions of Computer Reservation Systems to Owner Airline
Using Vendor Estimates of Halo Effect
(Amounts In $Millions)

	1987	1988	1989	1990	1991	1992
			APOLLO			
Airline Pass. Revenue	5418.4	6013.5	6443.0	7038.0	7705.5	8379.3
% Sold Through APOLLO	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Rev. Sold Through APOLLO	2113.2	2345.2	2512.8	2744.8	3005.1	3267.9
% Attributable to Halo	13.8%	13.8%	13.8%	13.8%	13.8%	13.8%
Revenue from Halo	291.6	323.6	346.8	378.8	414.7	451.0
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	233.3	258.9	277.4	303.0	331.8	360.8
@ 40% of Halo Revenue	116.6	129.5	138.7	151.5	165.9	180.4
@ 5.1% of Halo Revenue	14.9	16.5	17.7	19.3	21.2	23.0
			SABRE			
Airline Pass. Revenue	4695.9	5211.7	5583.9	6099.6	6678.1	7262.1
% Sold Through SABRE	39.2%	39.2%	39.2%	39.2%	39.2%	39.2%
Rev. Sold Through SABRE	1840.8	2043.0	2188.9	2391.0	2617.8	2846.7
% Attributable to Halo	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Revenue from Halo	276.1	306.4	328.3	358.7	392.7	427.0
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	220.9	245.2	262.7	286.9	314.1	341.6
@ 40% of Halo Revenue	110.4	122.6	131.3	143.5	157.1	170.8
@ 5.6% of Halo Revenue	15.5	17.2	18.4	20.1	22.0	23.9
			PARS			
Airline Pass. Revenue	1086.1	2004.5	2147.7	2346.0	2568.5	2793.1
% Sold Through PARS	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Rev. Sold Through PARS	632.1	701.6	751.7	821.1	899.0	977.6
% Attributable to Halo	11.8%	11.8%	11.8%	11.8%	11.8%	11.8%
Revenue from Halo	74.6	82.8	88.7	96.9	106.1	115.4
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	59.7	66.2	71.0	77.5	84.9	92.3
@ 40% of Halo Revenue	29.8	33.1	35.5	38.8	42.4	46.1
@ 0% of Halo Revenue	0.0	0.0	0.0	0.0	0.0	0.0

Table 4.7 (continued)

	1987	1988	1989	1990	1991	1992
			SYSTEMONE			
Airline Pass. Revenue	4334.7	4810.8	5154.4	5630.4	6164.4	6703.5
% Sold Through SYSTEMONE	18.6%	19.7%	20.9%	22.1%	23.3	23.9%
Rev. Sold Through SYSTEMONE	807.4	949.8	1076.8	1242.7	1435.3	1604.1
% Attributable to Halo	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
Revenue from Halo	73.5	86.4	98.0	113.1	130.6	146.0
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	58.8	69.1	78.4	90.5	104.5	116.8
@ 40% of Halo Revenue	29.4	34.6	39.2	45.2	52.2	58.4
@ 3.2% of Halo Revenue	2.4	2.8	3.1	3.6	4.2	4.7
			DATAS II			
Airline Pass. Revenue	4334.7	4810.8	5154.4	5630.4	6164.4	6703.5
% Sold Through DATAS II	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%
Rev. Sold Through DATAS II	771.6	856.3	917.5	1002.2	1097.3	1193.2
% Attributable to Halo	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Revenue from Halo	77.2	85.6	91.7	100.2	109.7	119.3
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	61.7	68.5	73.4	80.2	87.8	95.5
@ 40% of Halo Revenue	30.9	34.3	36.7	40.1	43.9	47.7
@ 4.1% of Halo Revenue	3.2	3.5	3.8	4.1	4.5	4.9

Source: Projected from data reported in Table 4.2 using assumptions described in text.

Table 4.8

Projected Value of Booking Services Provided to Vendor Airlines by Computer Reservation Systems

	1987	1988	1989	1990	1991	1992
United Bookings by APOLLO Subscribers (Millions)	26.4	28.0	28.8	30.4	31.9	33.3
Average Booking Fee ($)	1.85	1.90	1.95	2.00	2.00	2.00
Value to United ($ Millions)	48.9	53.1	56.1	60.8	63.8	66.7
American Bookings by SABRE Subscribers (Millions)	19.7	20.9	21.5	22.7	23.8	24.9
Average Booking Fee ($)	1.90	1.90	1.95	2.00	2.00	2.00
Value to American ($ Mill.)	37.5	39.7	41.9	45.4	47.7	49.8
TWA Bookings by PARS Subscribers ($ Millions)	3.7	3.9	4.0	4.2	4.4	4.6
Average Booking Fee ($)	1.75	1.85	1.95	2.00	2.00	2.00
Value to TWA ($ Millions)	6.5	7.2	7.8	8.4	8.9	9.2
Eastern Bookings by SYSTEMONE Subscribers (Millions)	12.0	12.7	14.1	14.9	16.7	17.5
Average Booking Fee ($)	2.07	2.07	2.07	2.07	2.07	2.07
Value to Eastern ($ Millions)	24.8	26.3	29.1	30.8	34.6	36.2
Delta Bookings by DATAS II Subscribers (Millions)	3.8	3.7	3.8	4.1	4.3	4.4
Average Booking Fee ($)	1.50	1.90	1.95	2.00	2.00	2.00
Value to Delta ($ Millions)	5.7	7.1	7.5	8.1	8.5	8.9

Source: Projected from data reported in Table 4.3 using assumptions described in text.

Table 4.7 uses the same procedure employed in Table 4.2 to project the anticipated contributions of the CRS systems to the passenger revenues and operating earnings of their host airlines. Like Table 4.2, it uses the vendor airlines' own estimates of the percent of airline revenue sold through their CRSs that is attributable to the halo effect. The projected financial benefits of CRS ownership to the host airline reported in Table 4.7 assume that the fraction of each carrier's revenue sold through its CRS remains at its 1986 level, although the previous assumption of a continuing increase in ticket sales through CRS-equipped travel agents would suggest even higher halo-generated airline revenues and earnings than those reported in the table. Nevertheless, even under the assumption that 40 percent of halo-generated revenues are translated into higher airline earnings, these projected internal contributions range from slightly under $50 million to as high as $180 million for each of the five CRSs by 1992.

Table 4.8 projects the value of bookings by each CRSs subscribers for travel on its airline owner, using the same method employed in Table 4.3.[21] Finally, Table 4.9 combines the projected components of each system's overall net cash contribution, including its cash flow on CRS operations _per se_, any contribution it makes to host airline earnings, and the imputed value of reservation services it provides to the host. As it indicates, these figures are projected to reach $330 to $340 million by 1992 for the two largest CRSs, even under the assumption that only 40 percent of halo-generated revenue is translated into increased earnings to their parent airlines. Even if as little as five to six percent of halo revenue is translated into airline profit, Table 4.9 indicates that these figures are projected to reach approximately $200 million by 1992. Table 4.9 also reports the residual value of each system, given each vendor's pattern of projected equipment investments and applying straight-line depreciation over a five-year period for all new equipment.

Table 4.10 reports the economic rates of return associated with the cash flow histories, future projections, and residual asset values of each airline CRS reported in Tables 4.4 and 4.9. These measures of the returns earned by vendors on their investments in developing CRS capabilities explicitly include the systems' contributions to their owners' earnings on airline operations and the value of reservation services they provide to their airline hosts, as well as the booking and subscriber fee revenues they generate. The rates of return shown in Table 4.10 reflect, for each system, different time horizons and the assumptions made about the fraction of incremental airline revenues that is translated into increased airline earnings.

The rates of return reported in Table 4.10 suggest that if the CRS vendors correctly estimated the magnitude of bias- and halo-generated incremental

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[21] Because these projections are based on 1986 data, we have continued to impute a value of CRS services to the affiliated airlines. Since no vendor was actually paying fees in 1986, this approach produces valid results, even though some carriers are making such payments.

Table 4.9

Projected Total Cash Contributions Generated by Airline Computer Reservation Systems (Amounts In $Millions)

	1987	1988	1989	1990	1991	1992
APOLLO						
Net CRS Cash Flow	40.8	50.6	59.6	70.5	76.8	82.9
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	233.3	258.9	277.4	303.0	331.8	360.8
@ 40% of Halo Revenue	116.6	129.5	138.7	151.5	165.9	180.4
@ 5.1% of Halo Revenue	14.9	16.5	17.7	19.3	21.2	23.0
Imputed Value of CRS Services to Host Airline	48.9	53.1	56.1	60.8	63.8	66.7
Total Cash Contribution:						
incl. 80% of Halo Revenue	323.0	362.7	393.1	434.3	472.4	510.3
incl. 40% of Halo Revenue	206.3	233.2	254.4	282.8	306.5	330.0
incl. 5.1% of Halo Revenue	104.5	120.3	133.4	150.6	161.8	172.6
Residual Asset Value[1]						174.0
SABRE						
Net CRS Cash Flow	97.8	105.6	117.6	133.0	141.3	149.3
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	220.9	245.2	262.7	286.9	314.1	341.6
@ 40% of Halo Revenue	110.4	122.6	131.3	143.5	157.1	170.8
@ 5.6% of Halo Revenue	15.5	17.2	18.4	20.1	22.0	23.9
Imputed Value of CRS Services to Host Airline	37.5	39.7	41.9	45.4	47.7	48.9
Total Cash Contribution:						
incl. 80% of Halo Revenue	356.2	390.4	422.2	465.3	503.1	540.7
incl. 40% of Halo Revenue	245.8	267.8	290.8	321.8	346.1	369.9
incl. 5.6% of Halo Revenue	150.8	162.4	177.9	198.4	211.0	223.0
Residual Asset Value[1]						208.2

Table 4.9 (continued)

	1987	1988	1989	1990	1991	1992
		PARS				
Net CRS Cash Flow	38.1	42.1	45.6	50.1	52.3	54.3
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	59.7	66.2	71.0	77.5	84.9	92.3
@ 40% of Halo Revenue	29.8	33.1	35.5	38.8	42.4	46.1
@ 0% of Halo Revenue	0.0	0.0	0.0	0.0	0.0	0.0
Imputed Value of CRS Services to Host Airline	6.5	7.2	7.8	8.4	8.9	9.2
Total Cash Contribution:						
incl. 80% of Halo Revenue	104.3	115.5	124.3	136.1	146.0	155.8
incl. 40% of Halo Revenue	74.4	82.4	88.9	97.3	103.6	109.7
incl. 0% of Halo Revenue	44.6	49.2	53.4	58.6	61.1	63.5
Residual Asset Value[1]						43.2
		SYSTEMONE				
Net CRS Cash Flow	11.5	12.3	13.7	14.6	16.4	17.4
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	58.8	69.1	78.4	90.5	104.5	116.8
@ 40% of Halo Revenue	29.4	34.6	39.2	45.2	52.2	58.4
@ 3.2% of Halo Revenue	2.4	2.8	3.1	3.6	4.2	4.7
Imputed Value of CRS Services to Host Airline	24.8	26.3	29.1	30.8	34.6	36.2
Total Cash Contribution:						
incl. 80% of Halo Revenue	95.2	107.8	121.2	135.9	155.6	170.4
incl. 40% of Halo Revenue	65.8	73.2	82.0	90.6	103.3	112.0
incl. 3.2% of Halo Revenue	38.7	41.4	45.9	49.0	55.3	58.3
Residual Asset Value[1]						112.4

Table 4.9 (continued)

	1987	1988	1989	1990	1991	1992
	DATAS II					
Net CRS Cash Flow	(7.4)	(1.1)	(0.1)	1.0	1.3	1.6
CRS Contribution to Owner Airline:						
@ 80% of Halo Revenue	61.7	68.5	73.4	80.2	87.8	95.5
@ 40% of Halo Revenue	30.9	34.3	36.7	40.1	43.9	47.7
@ 4.1% of Halo Revenue	3.2	3.5	3.8	4.1	4.5	4.9
Imputed Value of CRS Services to Host Airline	5.7	7.1	7.5	8.1	8.5	8.9
Total Cash Contribution:						
incl. 80% of Halo Revenue	60.0	74.5	80.8	89.3	97.6	106.0
incl. 40% of Halo Revenue	29.1	40.3	44.1	49.2	53.7	58.2
incl. 4.1% of Halo Revenue	1.4	9.5	11.2	13.2	14.3	15.4
Residual Asset Value[1]						51.0

Sources: Tables 4.5, 4.6, and 4.7.

1. Year-end remaining depreciable value of computer equipment only, estimated from equipment investment projections reported in Table 4.6 using straight-line depreciation over five years.

Table 4.10

Estimated Internal Rates of Return Earned by Airline-Owned Computer Reservation Systems

Contribution to Airline Earnings	End Year	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
80% of Bias and Halo Revenue[1]	1984	106.6%	128.2%	63.9%	144.4%	47.9%
	1986	108.9%	129.5%	75.2%	137.2%	64.4%
	1992	109.6%	129.7%	81.9%	145.0%	74.5%
40% of Bias and Halo Revenue[1]	1984	43.6%	63.9%	--	--	--
	1986	53.4%	68.7%	19.8%	54.2%	10.6%
	1992	58.1%	70.5%	38.1%	74.1%	31.6%
Actual % of Ticket Revenue[1,2]	1984	--	5.7%	--	--	--
	1986	13.3%	22.8%	--	9.6%	--
	1992	25.5%	31.5%	14.7%	37.8%	--

Source: Computed from historical and projected total cash flows and residual asset values reported in Tables 4.4 and 4.9.

Note: "--" indicates that no positive cash flows were reported during the period indicated, and thus no return was earned on the investment over that period.

1. Including indicated percent of vendors' estimates of CRS contributions to host airline revenues (incremental revenues) from bias and halo effect through 1984, and from the halo effect only after the CAB's rules went into effect.

2. Including same percent of incremental revenues as the percent of domestic passenger revenue actually passed through to airline operating profit during the period of commercial operation for each CRS. These figures are 5.1 percent for APOLLO, 5.6 percent for SABRE, zero percent for PARS, 3.2 percent for SYSTEMONE, and 4.1 percent for DATAS II.

airline revenues and the fraction of those revenues ultimately reflected in airline earnings (80 percent), these investments are extremely remunerative regardless of the time horizon over which they are evaluated. Even under the assumption that only 40 percent of incremental revenues was translated into added airline earnings, the larger systems are still extremely remunerative over any time period considered, while the smaller systems may be moderately remunerative if their present cash flows are sustained through 1992.[22] However, if the fraction of incremental revenue converted into airline profit was no larger that the fraction of all passenger ticket revenue ultimately reflected in airline profits (or even close to it), the estimated rates of return reported in Table 4.10 appear much more modest. Thus, the exact magnitude of this parameter critically influences the estimated financial benefits of the vendors' CRS investments.

The estimated returns reported in Table 4.10 suggest that at least the two largest airline vendors' investments in their CRS systems were financially successful during the period ending with the 1984 CAB rules, when these systems earned primarily indirect returns by increasing the earnings of those airlines. Perhaps more important, however, Table 4.10 also suggests that the vendors' investments to enhance the performance of their systems and extend their travel agent networks since the CAB rules took effect have been at least as remunerative as their pre-rule CRS investments, because the rates of return encompassing this period are actually higher than those through 1984.

Further, the returns calculated to include the projected cash flows through 1992 suggest that these investments will continue to be remunerative during the foreseeable future. Only substantial declines in current booking fees (or, in some cases, subscriber fees) or major innovations in airline information and ticket distribution channels that dramatically reduce the importance of CRS-equipped travel agents as sales outlets for air travel, none of which appears likely within the time horizon used in this analysis, could substantially reduce the estimated returns shown in Table 4.10.

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[22] Although Table 4.10 reports extremely high estimated rates of return for SYSTEMONE under certain assumptions, we believe that these estimates are partly the result of the procedures we used to estimate the capitalized value of equipment leases entered into by Eastern, its original host airline, during the early years of its development. These procedures result in estimated initial capital investments for developing SYSTEMONE (see Table 4.1) that appear small in comparison to those reported by vendors who purchased equipment directly or allocated its estimated value from equipment purchases made by their host airlines. Because the economic rate of return calculation is sensitive to the magnitude of initial cash outlays, relatively modest underestimates of the capitalized value of Eastern's original investment leases may have contributed to the very high estimated rates of return for SYSTEMONE that are reported in Table 4.10.

F. Accounting Returns on Airline CRS Investments

Although caution must be exercised when interpreting conventional accounting measures of profitability, accounting returns can still provide supplemental information on the profitability of these systems. Accounting measures of profitability are an indispensable management tool for monitoring the returns generated by a firm's investments, and are thus used by firms to allocate their financial resources among projects. Accounting rates of return are also employed in regulatory proceedings to evaluate the reasonableness of prices charged for a wide variety of services, a purpose closely analogous to that of this study. As their widespread use in these situations indicates, the assertion that correctly measured accounting returns fail to reflect the economic rate of return earned by an enterprise is not universally accepted.[23]

Table 4.11 displays estimated operating revenues, operating expenses, net operating income, and net operating income expressed as a percent return on investment in plant and equipment for airline CRSs during 1985 and 1986. The participant revenue entries reported in the table consist of booking fees paid by airline, hotel, auto rental, and other CRS participants in return for each reservation generated by travel agents equipped with that system, together with very small additional amounts from supplemental charges to participants for marketing data and other CRS-generated products. Subscriber revenues include fees paid by travel agents for equipment installation and servicing, as well as training and support services they receive from CRS vendors.

In Table 4.11, vendors' reported expenses have been classified into five categories: (1) salaries and benefits paid to employees; (2) depreciation on central processing, remote terminal, and other CRS equipment; (3) purchases of utility services and lease payments for telephone circuits comprising the communications network; (4) corporate overhead expenses allocated by airline vendors to their CRS activities; and (5) conversion and system use incentives paid to travel agent subscribers. Because CRS vendors were not requested to submit balance sheet information as part of the Department's Information Directive, it was necessary to estimate the value of total invested capital on which profits were earned. The measure used in Table 4.11 is calculated from reported investment in plant and equipment from the initial year of each system's operation through the year indicated,

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[23] For a variety of more sanguine views about the usefulness of accounting measures of profitability in assessing monopoly power than those of Fisher and McGowan, see William F. Long and David J. Ravenscraft, "The Misuse of Accounting Rates of Return: Comment," American Economic Review, June 1984, 494-500; Stephen Martin, "The Misuse of Accounting Rates of Return: Comment," American Economic Review, June 1984, 501-506; Gerald L. Salamon, "Accounting Rates of Return," American Economic Review, June 1985, 495-504; Robert Jacobson, "The Validity of ROI as a Measure of Business Performance," American Economic Review, June 1987, 470-478; and Stephen Martin, "Measurement of Profitability and the Diagnosis of Market Power," International Journal of Industrial Organization, forthcoming.

Table 4.11
Estimated Accounting Profitability of Airline CRS Investments
(Amounts in $ Millions)

	APOLLO		SABRE	
	1985	1986	1985	1986
Operating Revenue				
Participant Revenue	152.6	174.4	199.1	230.9
Subscriber Revenue	78.8	97.5	93.4	105.7
Total Operating Revenue	231.4	271.9	292.5	336.6
Operating Expenses				
Salaries and Benefits	70.6	75.9	61.0	65.7
Depreciation	28.7	34.2	30.6	35.3
Purchased Services[1]	28.4	34.1	74.8	94.7
Allocated Corporate Overhead	27.4	48.0	19.3	22.2
Subscriber Incentives	8.8	10.0	7.6	6.3
Total Operating Expenses	163.9	202.2	193.3	224.2
Net Operating Income	67.5	69.7	99.2	112.4
Total Invested Capital[2]	101.5	114.0	84.9	105.3
Net Operating Income as a % of Total Investment	66.5%	61.1%	116.8%	106.7%

	PARS		SYSTEMONE		DATAS II	
	1985	1986	1985	1986	1985	1986
Operating Revenues						
Participant Revenues	45.9	52.8	20.4	56.1	13.3	19.2
Subscriber Revenues	24.2	23.0	20.6	32.4	22.6	28.0
Total Operating Revenues	70.1	75.8	41.0	88.5	35.9	47.2
Operating Expenses						
Salaries and Benefits	18.4	19.8	10.0	16.1	13.7	14.9
Depreciation[3]	9.4	13.1	16.4	20.7	11.5	14.9
Purchased Services[1]	16.6	22.4	18.4	30.9	13.4	14.6
Allocated Corporate Overhead	10.5	11.6	2.0	3.0	0.6	2.0
Subscriber Incentives	2.4	3.1	2.3	6.4	7.8	8.2
Total Operating Expenses	57.3	70.0	49.1	77.1	47.0	54.6
Net Operating Income	12.8	5.8	(8.1)	11.4	(11.1)	(7.4)
Total Invested Capital[2]	32.3	31.0	46.2	47.3	86.4	94.2
Net Operating Income as a % of Total Investment	39.6%	18.7%	-17.5%	24.1%	-12.8%	-7.9%

Source: Estimated from information reported by CRS vendors in response to DOT Information Directive, Items 12 to 17.

1. Includes communications circuit leases and utility expenses.

2. Estimated year-end total value of facility and equipment investments that remain to be depreciated.

3. Entry for SYSTEMONE represents estimated amortization of equipment leaseholds.

less cumulative reported depreciation of those assets through the current year.[24]

As the table indicates, by conventional accounting measures the APOLLO and SABRE systems appear to have been very profitable during 1985 and 1986, generating yearly before-tax returns of 60 to 70 percent (APOLLO) and over 100 percent (SABRE) on their host airlines' CRS investments. The PARS system appears by this measure to have earned returns equal to 20 to 40 percent of invested capital during these two years, while SYSTEMONE was profitable only during 1986. In contrast, Delta's DATAS II system was not profitable in 1985 or 1986.

Since they omit any contribution the systems made to their parent airlines' profits by generating incremental revenues or providing reservation services to their owners, these estimated rates of return may understate the systems' true profitability. In addition, the returns reported in Table 4.11 fail to recognize that certain current expenses actually represent investments in their CRSs. Although the returns on CRS investments reported in Table 4.11 may not reflect the underlying economic profitability of vendors' CRS investments during the post-rule period, the correspondence between the estimated accounting returns on vendor airlines' CRS activities and the underlying economic returns on those investments can be improved in three ways.

First, treating certain outlays such as system development costs and subscriber training expenses as investments in "intangible" assets rather than as current expenses can improve the accuracy with which vendors' total investments in developing and marketing their CRS capabilities are measured. Second, adopting depreciation patterns for these investments that more closely reflect their economic lifetimes, as well as the patterns of decline in their capability to generate returns over those lifetimes, should improve the correspondence between calculated profits and the remaining value of the specific investments that generate them. Third, recognizing additional sources of income, which vendors typically do not report or attempt to estimate because they do not represent cash revenues, can also improve the accuracy of profitability estimates.

Measures of depreciation used for accounting purposes such as those reported by the CRS vendors do not generally reflect the decline in the capacity of an asset to generate returns, the theoretically correct measure of depreciation.[25] Accounting measures of depreciation estimate the decline in an asset's value over an arbitrarily assumed lifetime according to a pre-established formula, since this procedure offers historical consistency, is applicable to a wide variety of types of assets, and agrees with methods used to determine tax liability.[26] Yet changes in the demand for the product or production technology, as well as in competition in the marketplace, can change the economic values of various assets without necessarily prompting corresponding adjustments of the values assigned to them for internal accounting purposes. In short, conventional accounting practices employ depreciation methods that do not correspond to the changing economic values of assets.

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[24] The resulting measure corresponds to total invested capital as of the end of each year for which it is reported. Although no provision for working capital is made, any such provision is likely to be small.

Unfortunately, adjusting the depreciation estimates reported by CRS vendors (those used in Table 4.11) to reflect the changing values of the systems' physical assets is complicated by the vendors' failure to identify the lifetimes, time profiles, or residual values they employ in constructing these estimates.[27] Thus, to develop estimates of CRS vendors' equipment depreciation costs that are more consistent both with actual economic depreciation and with one another, we apply a single procedure to equipment outlays reported by each vendor. Specifically, the values of vendors' investments in central processing, communications, and other equipment are assumed to decline from their reported initial acquisition costs to zero residual value at a constant annual rate (straight-line depreciation) over a five-year period.

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[25] This can be seen from the fact that vendors report a category of annual non-operating income called "Gain or Loss on Sale of Equipment," which represents the difference between sale price and the recorded, depreciated value of assets that are actually sold during a given year. The correction for this difference indicates that the physical assets of airlines' CRS enterprises are typically not depreciated for internal accounting pruposes at the same rates as their actual market values decline, and indeed typical accounting practices purposely do not generally do so. Including these gains or losses can partly correct profit estimates that incorporate them for the failure of reported depreciation to correspond to the changing market values of assets. However, this correction is incomplete because it applies only to assets that are actually sold during a given year, which presumably represent only a small share of total assets, as well as because it is not generally applied to non-equipment or intangible assets even when they are subject to market transactions.

[26] For a discussion of these and other sources of inconsistency between accounting and economic measures of income, costs, and profitability, together with some useful suggestions for reconciling these inconsistencies, see George J. Benston, "Accounting Numbers and Economic Values," The Antitrust Bulletin, Spring 1982, 161-215.

[27] Delta reports the assumed lifetimes and residual values used to estimate depreciation on various types of CRS-related equipment. These lifetimes range from six to nine years, over which most equipment assets are assumed to decline to zero or near-zero residual values, but no information on the time profiles of depreciation assumed to prevail over those lifetimes is provided. However, none of the other CRS vendors provides any information regarding the assumptions used to construct reported depreciation estimates for CRS equipment or other capital investments allocated to their CRS activities.

This relatively short assumed lifetime is intended to approximate the actual economic lifetime of equipment investments in an environment characterized by rapid innovation in computer services technology and intensifying competition among CRS vendors. The assumption that these assets depreciate to a zero residual value after five years appears to be consistent with vendors' own practices, as well as with the pace of innovation in computer hardware technology. While somewhat arbitrary, the straight-line pattern of depreciation is almost certainly more consistent with the actual pattern of decline in the economic values of these assets than are the various accelerated depreciation schedules used to estimate depreciation for tax accounting purposes. It is perhaps also more consistent with the actual profile of economic depreciation than the changes in asset book values made for internal or public accounting purposes, although vendors provide so little information on the time patterns of depreciation they assume in constructing their reported estimates that this is difficult to evaluate.

Another adjustment intended to improve the accuracy with which vendors' reported expense data measure the economic costs of providing CRS services is to treat certain current expenses reported by vendors as investments in developing intangible assets. These investments include outlays by vendors for computer programming, software acquisition, and related CRS system development activities, all of which are intended to establish and enhance vendors' capabilities to provide automated reservations service. In addition, expenses for marketing these systems to current and prospective subscribers in effect represent investments in developing agents' allegiance to a particular CRS, while the subscriber conversion incentives vendors offer are intended to extend the travel agent networks through which their services are distributed. Thus, like outlays for equipment, these expenditures are intended to produce returns over a period of years rather than solely during the year in which they are made, and thus should be amortized over the duration of that period.

Yet only one CRS vendor appears to treat any of these expenses as investments, and even that exception is limited to the amortization of system development expenses. Thus, in this analysis, reported outlays for these purposes are assumed to decline to zero remaining value over a three-year period, again in straight-line fashion. The extremely short lifetime applied to these non-equipment assets is intended to reflect the ongoing reprogramming efforts required to support vendors' rapid innovation in CRS service features, as well as vendors' own estimates of the typical duration of a travel agent's affiliation with a particular CRS. This procedure corrects the tendency of normal accounting procedures to overstate the costs associated with such investments in the year when they are made, while understating both the costs they impose over their subsequent lifetimes and the current value of investments on which returns are earned during any year of those lifetimes.

A third adjustment is necessary to assess the profitability of CRS investments because as indicated previously, each vendor airline uses a substantial share of the services its CRS system produces. Measured by the fraction of passenger bookings made by subscribers that involve travel on flights operated by the host airline, these shares varied from 14 percent to 23 percent during 1986 for the five airline-operated CRSs. As previously reported in the discussion of Table 4.3, the value of unpriced reservation services to each CRS host can be estimated by applying the average booking fee charged to that system's airline participants by the number of passenger reservations booked by its subscribers for travel on the host's flights. The estimated 1985 and 1986 values of these services to each CRS vendor used in Table 4.12 are those previously reported in Table 4.3.

In this case, the average booking fee charged to other airlines is unequivocally the correct measure of the income that should be imputed to a CRS for the unpriced services it provides to its airline owner. Unlike the earlier examination of the financial benefits of CRS ownership, where it was necessary to evaluate vendors' investments partly on the basis of their financial contributions to the airline services they were originally designed to market, we are attempting here to determine the "stand-alone" profitability of each vendor's CRS investments. In this context, we have not included these systems' contributions to the profitability of their airline owners as an additional source of income to the various CRSs.

These adjustments produce estimates of the stand-alone profitability that would be realized by each vendor's CRS if it operated as a financially independent business enterprise, pricing booking services to its host airline identically to those it supplied to its other airline participants. Table 4.12 presents revised estimates of the accounting returns on airline CRS investments during 1985 and 1986, as measured by net income and its value as a percent of each system's year-end value of total invested capital. As the table indicates, income includes the imputed value of CRS services utilized by the host airline, as well as the cash revenues it receives from participants and travel agents for booking and subscription fees.

Table 4.12 allocates vendors' operating costs among those for operating CRS computer facilities, maintaining the communications network linking those facilities with participants and subscribers, and servicing and support of travel agents. The table also reports the value of depreciation on CRS vendors' equipment investments (adjusted as described previously), together with estimated amortization of CRS product development costs, marketing expenditures, and subscriber conversion incentives. The estimated values of total invested capital reported in Table 4.12 represent the cumulative historical total of investments in both CRS equipment and intangible assets through the end of the current year, less cumulative depreciation and amortization of these investments through that year.

The adjusted rate of return estimates reported in Table 4.12 are roughly comparable to the unadjusted estimates reported previously in Table 4.11. The adjusted annual rates of return on invested capital earned during 1985 and 1986 were approximately 50 to 55 percent for APOLLO, 75 to 90 percent

Table 4.12

Adjusted Accounting Profitability of Airline CRS Systems

Income, Costs, and Profitability ($ millions)	APOLLO		SABRE	
	1985	1986	1985	1986
Income				
Participant Revenue	152.6	174.4	199.1	230.9
Subscriber Revenue	78.8	97.5	93.4	105.7
Imputed Income from Host	36.3	46.4	31.0	35.2
Total Income	267.7	318.4	323.5	371.8
Operating Costs				
Computer Operations	26.4	32.9	30.1	34.2
Communications Network	27.2	35.7	35.4	53.0
Subscriber Services	41.4	49.1	45.2	47.4
Total Operating Costs	95.0	117.7	110.7	134.6
Depreciation and Amortization				
Depreciation of Equipment[1]	27.2	35.3	22.1	29.3
Amortization of Other Assets[2]	21.0	28.8	20.6	29.9
Total Deprec. and Amortization	48.2	64.1	42.7	59.2
Total Costs	143.2	181.9	153.4	193.7
Net Income (Loss)	124.5	136.5	170.1	178.1
Total Invested Capital[3]	224.7	260.4	187.7	234.1
Net Income as a % of Investment	55.4%	52.4%	90.6%	76.1%

Table 4.12 (continued)

Income, Costs, and Profitability ($ millions)	PARS		SYSTEMONE		DATAS II	
	1985	1986	1985	1986	1985	1986
Income						
Participant Revenue	45.9	52.8	20.4	56.1	13.3	19.2
Subscriber Revenue	24.2	23.0	20.6	32.4	22.6	28.0
Imputed Income from Host	6.2	6.1	7.0	19.2	3.6	4.8
Total Income	76.3	81.9	48.0	107.7	39.5	52.0
Operating Costs						
Computer Operations	24.2	28.4	3.7	5.0	3.4	4.3
Communications Network	12.8	17.1	9.8	17.9	9.8	11.5
Subscriber Services	NR	NR	10.9	27.5	4.9	3.4
Total Operating Costs	37.0	45.5	24.4	50.4	18.1	19.2
Depreciation and Amortization						
Deprec. of Equipment[1]	12.4	11.9	16.4	20.7	11.9	15.6
Amort. of Other Assets[2]	5.6	7.6	4.2	7.3	12.7	18.1
Total Deprec. and Amort.	18.0	19.5	20.6	28.0	24.6	33.7
Total Costs	55.0	65.0	45.0	78.4	42.7	52.9
Net Income (Loss)	21.3	16.9	3.0	29.3	(3.2)	(0.9)
Total Invested Capital[3]	52.4	56.3	63.5	79.4	98.5	107.6
Net Income as a % of Investment	40.6%	30.0%	4.7%	36.9%	-3.2%	-0.8%

Source: Estimated from information reported by CRS vendors in response to DOT Information Directive, Items 12 to 17.

1. Depreciation of computer, communications, and subscriber equipment. Entry for SYSTEMONE represents estimated amortization of equipment leaseholds.

2. Amortization of expenses for product development, marketing, and subscriber conversion.

3. Estimated year-end total value of outlays for facility, equipment, product development, marketing, and subscriber conversion that remain to be depreciated or amortized. This figure exceeds "total invested capital" reported in Table 4.11 because it includes the remaining value of vendors' investments in intangible assets, in addition to the remaining value of facility and equipment investments.

for SABRE, 30 to 40 percent for PARS and five to 37 percent for SYSTEMONE. Again, Delta Airlines' DATAS II system does not appear to have been profitable during 1985 or 1986, even by this revised measure.

Tables 4.11 and 4.12 report similar returns because the various adjustments of reported income and expenses reflected in Table 4.12 increase the estimated values of both net CRS income and total invested capital, which form the numerator and denominator of the calculated returns on investment, by roughly similar proportions. This occurs primarily because outlays by most vendors for intangible assets are rising rapidly, so that amortizing these expenditures over three years rather than treating each year's outlay as a current expense reduces each system's estimated total expenses during 1985 and 1986. Although this adjustment produces an increase in estimated net income, the remaining unamortized values of vendors' investments in intangible assets also rise as a result, largely offsetting the effect of higher net income on the calculated rate of return. Nevertheless, the fact that the resulting estimates of returns on total investment for the various CRSs are comparable to those originally reported in Table 4.11 provides another indication that the returns currently being generated by some vendors' investments in CRS activities may be quite large.

G. Summary

The evidence presented in this chapter suggests that SABRE and APOLLO have been and almost certainly remain extremely remunerative investments for their airline owners. Moreover, the three smaller systems -- PARS, SYSTEMONE, and DATAS II -- may produce unusually high returns on their owners' investments if the cash flows they currently generate persist in the future. Assuming that these systems' vendors correctly estimated the magnitude of their contributions to increased airline passenger revenues from display bias and the halo effect, Table 4.10 suggests that the financial benefits of CRS ownership have been substantial under all but the most conservative assumptions.

Perhaps more important, the analysis of economic returns on CRS investments reported in Section D indicates that vendors' ongoing outlays to enhance the capacity and performance of their CRSs and to extend their travel agent networks, which exceeded $150 million for each of the two largest vendors during 1986, may continue to be extremely remunerative. This finding suggests that the increased fees for CRS services imposed in response to the 1984 CAB rules have made investments in airline-owned CRSs at least as remunerative since the rules went into effect as they were before 1984. Tables 4.11 and 4.12 provide additional evidence that at least the two largest systems continue to represent extremely remunerative investments in the changed environment fostered by the CAB's 1984 rules, even without considering any contributions they may continue to make to the financial viability of their airline owners.

In the next chapter, we explore the relationship of fees charged by CRS vendors for each of the two basic services they provide -- reservation services to participating airlines and support services to their travel agent subscribers -- to the costs they incur in providing each of these services. It also investigates in more detail the financial benefits of these systems to their parent airlines.

V. ANALYSIS OF CRS VENDORS' MARKET POWER

A. Introduction

The CRS vendors participate in two basic markets. In one market, vendors provide reservation services for the airlines, hotels, rental car companies, and other firms that participate in their CRSs. These participants pay a fixed fee per reservation booked. In the other market, vendors provide equipment, training, and support services to travel agents, for which vendors charge agents monthly or annual fees that are specified by the terms of the contracts governing these transactions.

An important question is whether the CRS vendors are able to exercise market power in their dealings with either airlines and other participants in their systems or travel agents who subscribe to their CRSs. As Chapter II indicated, several previous studies of the CRS industry have expressed concern that vendors may exercise market power over competing airlines or travel agents. This chapter attempts to analyze whether the CRS vendors do so.

Section B identifies potential sources of vendors' market power over both airlines and travel agents. Section C examines the relationship of fees charged for the two basic products supplied by CRS vendors (passenger reservations and subscriber services) to the costs vendors incur in supplying them. Section D investigates changes in the vendors' market shares in major urban areas. Finally, Section E analyzes the vendors' ability to influence travel agents to book passengers on host airlines who would otherwise travel by competing airlines.

B. Potential Sources of Vendors' Market Power

The most common source of a producer's ability to exercise market power over potential customers is the absence of actual or potential competition from suppliers of comparable products. Thus, any ability the CRS vendors have to exert undue bargaining influence over other airlines or travel agents would be expected to stem from a limitation on the number of vendors competing to provide reservation services.

Various impediments to entry into the CRS industry may limit the number of viable competitors. For example, economies of scale in producing reservation services appear to be significant, and a potential entrant would have to incur substantial non-recoverable investments. By limiting the number of potential competitors, entry barriers may confer substantial bargaining leverage on CRS vendors in setting the terms of their transactions with other airlines and travel agents.

The CRS industry consists of five competitors offering products that are increasingly comparable. Each of these five vendors has access to a widespread network of travel agent subscribers. Although not large, in most industries this number of active competitors might be expected to limit the bargaining power of any one vendor, even with the presence of significant barriers to entry into that industry. In today's airline industry, however, several factors appear to confer on CRS vendors potential market power in terms of the fees they charge, especially over competing airlines. Further, the strength of this market power appears to be independent of the number of actual or potential competitors in the industry.

Two factors provide CRS vendors with the ability to exercise market power in setting the booking fees they charge participating airlines. First, because such a large fraction of airline tickets is sold by CRS-equipped travel agents, all major airlines apparently regard it as necessary to participate in any CRS that is used by a significant number of travel agents. (The smallest of these systems, Delta's DATAS II, is subscribed to by nearly ten percent of all automated travel agents.) Thus, virtually every major airline participates in each of the five airline-owned CRSs. In exchange for prominent display of its flights and the capability of subscribers to book reservations on those flights, every participating airline agrees to pay each system's prescribed booking fees.

Most airlines believe that significant revenue losses would result from any refusal by a carrier to participate in a major CRS, since the CAB rules permit that system's vendor to relegate the flights operated by non-participating carriers to a lower display status than they would otherwise receive. Further, the procedures necessary for travel agents to generate passenger reservations on non-participating carriers' flights are often more complex, and the reliability with which those bookings are accepted and recorded by the internal reservations systems of non-participating carriers may be lower. Even national or important regional airlines, on whose flights passengers would presumably still insist upon being booked, are unwilling to withhold their participation from any CRS because of the fear of incurring potentially serious losses of traffic and revenue. As a result, these airlines exercise little direct bargaining influence over the booking fee levels set by the vendors.

Second, airlines' ability to influence fee levels indirectly, by guiding bookings on their flights through CRSs that impose lower booking fees, also appears to be limited. This result occurs because non-CRS owning airlines have no mechanism to influence potential passengers on their flights to patronize travel agents equipped with systems that impose lower booking fees, or to persuade travel agents to equip themselves with such systems.

Further, even airlines that own CRSs are limited in their ability to expand the number of agents using their systems by the cost and difficulty of converting travel agents who subscribe to other CRSs to their own systems. Thus, while airlines ultimately pay the booking fees imposed by the vendors, travel agents choose which CRS will be used to generate passenger bookings. Agents do so by selecting the CRS to which they subscribe, but in making those choices agents have little incentive to consider the comparative level of booking fees competing vendors impose on airlines. As a result of this situation, airlines may be vulnerable to the exercise of market power by CRS vendors; even airlines that operate major CRSs may be subject to market power exercised by owners of competing systems. If vendors do exercise market power over competing airlines, it seems most likely to result in booking fees that exceed the costs vendors incur in generating and storing passenger reservations for travel on participating airlines.

C. The Reasonableness of CRS Booking and Subscription Fees

A major controversy surrounding CRSs is whether the fees charged by the vendors to participating airlines and travel agents are reasonable. Here, reasonableness connotes the closeness with which the fees charged compare to the costs incurred in supplying reservation and subscription services. In a competitive environment, the sum of fees from subscribers and participants would equal the total costs of operating the reservation system (plus a competitive rate of return on the firm's investment). Because CRS vendors operate in two separate markets, however, the high rates of return on their CRS investments that were reported in Chapter IV do not necessarily indicate whether booking or subscription fees are set above the costs of producing the services for which these separate fees are charged.

Although the costs of serving these two groups are not perfectly separable, one useful distinction is between costs incurred to support and process booking transactions and costs incurred in soliciting and supporting agency subscribers. The relationship of reservation and subscription fees to the costs vendors incur in producing reservation and subscription services provide a test of whether those fees are reasonable. (Although booking fees charged by CRS vendors to non-airline participants in their systems are considerably higher than those charged to airline participants, this analysis is limited to the reasonableness of airline booking fees and charges to subscribers.)

In order to test the reasonableness of CRS booking and subscription fees, this section develops estimates of the costs -- including a fair return on investment -- incurred by CRS vendors to provide reservations services and to service their subscribers. Unfortunately, developing these estimates is complicated by the necessity of allocating CRS vendors' reported expenses between those for supplying reservation services and those for servicing travel agents. In addition, many of the same difficulties in using expenditure data reported by CRS vendors to determine the true economic costs of supplying CRS services that were discussed in Chapter IV recur in this analysis. Despite these complications, however, the relationship of these estimated costs to the fees charged by CRS vendors provides a useful indication of whether CRS vendors exert market power over other airlines or travel agents.

The activities in which CRS vendors engage, and thus the costs they incur in producing and distributing computerized reservation services, fall into several distinct categories. First, vendors must develop the capacity to process and store reservation records, expand this capacity as necessary to accommodate growing demand for reservation services, and periodically incorporate new capabilities or features in the services their systems provide. All of this requires substantial initial and recurring investments in information processing and storage capacity, as well as in software development and enhancement. Second, each CRS vendor faces ongoing costs to house and operate extensive data processing equipment, maintain current information on scheduled service, seat availability, and fares for access by subscribers, and provide a communications network linking its central (or "host") computer with participants' own reservation computers and the system's subscribers.

Third, CRS vendors incur substantial ongoing expenses to develop and maintain networks of travel agent subscribers, who generate the passenger reservations that represent the basic service vendors supply to airlines and other CRS participants. These outlays include investments in equipment used by subscribers, various expenses for marketing the vendor's system to current and potential subscribers, and incentives paid to travel agents to induce them to convert to the vendor's CRS or remain subscribers. Finally, vendors provide training in the use of their systems, equipment maintenance, and various other services to subscribers, all of which can be costly to supply to the typical system's extensive, geographically dispersed network of relatively small travel agencies.

Table 5.1 presents the distribution of 1986 expenditures reported by the five airline CRS vendors among these various categories. As the data presented in the table indicate, combined annual investment outlays for computer, communications, and subscriber equipment represented 17 to 22 percent of that year's total outlays for the largest and most mature systems, but ranged up to almost 36 percent of reported expenditures for systems still in the developmental phase. The table also reports that outlays for developing and enhancing the computer programming that allows vendors to process passenger reservations represented 11 percent of total outlays for DATAS II, but accounted for only seven to eight percent of total reported expenses for more mature systems. Nevertheless, the dollar magnitudes corresponding to this latter range (nearly $17 million each for APOLLO and SABRE) indicate that vendors continue to make significant investments in enhancing the capabilities of their systems.

Table 5.1 also reports that six to 14 percent of each vendor's 1986 expenditures consisted of those for operating the central computers in which reservations are processed, a category that also includes expenses for maintaining the computerized data bases that present schedule, fare, and seat availability information to subscribers. Another 16 to 25 percent of the five vendors' reported outlays in 1986 were for operating the communications network that connects the central CRS computer with participants' internal reservations computers and the system's subscribers, which consists primarily of leased telephone circuits.

During 1986, each of the five CRS vendors spent 11 to 19 percent of total cash expenditures marketing its systems to prospective as well as existing subscribers. Four of the five vendors devoted an additional three to seven percent of total expenditures to inducing new subscribers to switch from other CRSs to their own, or inducing current subscribers to remain users of their systems and to employ their systems' recently added capabilities to make rental car and hotel bookings or to issue boarding passes. Finally, Table 5.1 shows that vendors' outlays for initial training and ongoing support of their travel agent subscribers amounted to the remaining 13 to 26 percent of their total 1986 cash expenditures.

TABLE 5.1

Distribution of 1986 Vendor-Reported CRS Expenditures by Category

	Percent of Total Reported Expenditures				
Expense Category	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
Computer, Communications, and Subscriber Equipment	20.5%	22.3%	17.2%	35.6%	26.0%
CRS Product Development	7.6%	6.8%	--[2]	--[3]	11.0%
Central Computer Operations	14.4%	13.7%	--[2]	5.7%	7.0%
Communications Network Operation	15.7%	21.2%	24.8%	20.6%	18.7%
CRS Marketing Efforts	11.3%	10.6%	12.1%	18.1%	18.9%
Subscriber Conversion, Retention, and System Use Incentives	4.4%	2.5%	4.5%	7.4%	0.1%
Subscriber Training and Support	26.1%	22.9%	--[2]	12.6%	18.3%
Total 1986 Expenses[1] ($ millions)	$227.9	$249.9	$68.7	$87.3	$61.3

Source: Allocation of individual cost items reported in CRS vendors' responses to DOT Information Directive, Items 13 to 17.

1. Cash expenditures only; omits reported depreciation but includes reported investment outlays.

2. Not reported separately; "CRS Product Development," Central Computer Operations," and "Subscriber Training and Support" together represent 41.4 percent of vendor-reported expenditures.

3. Included in "Computer, Communications, and Subscriber Equipment" category.

Because CRS vendors impose separate fees for the services they provide to participants in their systems and the travel agents who subscribe to them, testing the reasonableness of these fees requires allocating the individual expenditure categories reported in Table 5.1 between those for producing reservation services and those for servicing travel agent subscribers. This allocation process requires distinguishing expenditures that vendors make on behalf of participants in their CRS systems, and thus would expect to recover through booking fees charged for passenger reservations, from those they make to service their subscribers and presumably charge directly to travel agents. Thus, we allocate each individual expenditure category reported in Table 5.1 by assigning to vendors' costs for producing reservations services the fraction of it that vendors would be expected to recover from competitively determined booking fees. In turn, the remainder of each category is assigned to the costs of servicing vendors' subscriber networks.

Table 5.2 presents what we feel are the most likely allocations of the seven expenditure categories appearing in Table 5.1 that result from applying this principle. Three of the expenditure categories are allocated entirely to the costs of producing reservation services: product development outlays, operating expenditures for CRS central computers, and the incentives paid to subscribers. Because expenses for operating the central computer in which reservation records are generated and stored are clearly among those that vendors would be expected to recover from the participants on whose flights passenger reservations are processed, their full amount is allocated to the production of reservation services. Similarly, outlays for developing or acquiring the computer software that provides a CRS's capability to generate, store, and retrieve those reservation records represent costs that in a competitive market would be recovered from booking fees. Although we cannot unambiguously assign subscriber incentives fully to the cash expenditures we expect vendors to recover from booking fees, we believe that this is the correct allocation. Following this same logic, Table 5.2 also shows that the entire amount of vendors' outlays for "Subscriber Training and Support" is allocated to the costs for servicing travel agents, since vendors would be expected to recover their costs for providing these services exclusively through subscriber fees.

The most likely allocation of expenses shown in Table 5.2 partitions each of three expenditure categories, "Computer, Communications, and Subscriber Equipment," "Communications Network Operation," and "CRS Marketing Efforts," between reservation and subscriber services. We refer to these three expenditure categories, together with the subscriber incentives category, as joint expenditures for producing reservation and subscriber services. (After making the various adjustments that are intended to improve the correspondence of vendors' reported expenditures to their actual costs for producing reservation and subscriber services, we refer to these categories as "joint costs.") This reference reflects the fact that unlike the other expenditure categories that appear in Tables 5.1 and 5.2, we cannot confidently assign them entirely to either the production of reservation services or vendors' efforts to service their travel agent subscribers.

TABLE 5.2

Most Likely Allocation of CRS Expenditure Categories Between Reservation and Subscriber Services

	Percent Allocated To:	
Expenditure Category	Reservation Services	Subscriber Services
Computer, Communications, and Subscriber Equipment	60%	40%
CRS Product Development	100%	--
Central Computer Operations	100%	--
Communications Network Operation	10%	90%
CRS Marketing Efforts	40%	60%
Subscriber Conversion, Retention, & System Use Incentives	100%	--
Subscriber Training and Support	--	100%

Source: Based on descriptions of individual cost items accompanying CRS vendors' responses to DOT Information Directive, Items 13 to 16. See text for discussion.

In their responses to the Department's CRS Information Directive, most vendors included among their itemized revenue sources receipts from charges for installation, rental, and servicing of remote terminals, printers, and other equipment located at subscribing travel agencies. In addition, vendors typically reported itemized receipts for communications charges assessed to subscribers, as well as for ongoing support and servicing of their subscriber accounts. Thus, we have assumed that competitively determined subscription fees would fully recoup the costs vendors incur in providing these services to travel agents, an assumption that is reflected in the allocations of the "Computer, Communications, and Subscriber Equipment," "Communications Network Operation," and "Subscriber Training and Support" categories reported in Table 5.2.

Analysis of the itemized equipment investment and depreciation figures reported by certain CRS vendors indicates that about 35 percent of a typical system's total equipment investment represents hardware located at subscribing travel agencies. Approximately another 10 percent constitutes equipment that forms part of the communication networks linking subscribers, the vendor, and participants, while the remaining 55 percent represents centrally located computer equipment and facilities. Thus, as Table 5.2 indicates, our most likely allocation assigns 60 percent of the costs associated with these investments to the production of reservation services, consisting of the central site equipment share plus one-half of the share corresponding to communications equipment. These costs are included among the total expected to be recovered from booking fees, while the remaining 40 percent of equipment-related costs is assigned to the total expected to be recovered from charges to subscribers.

Similarly, analysis of the detailed expense records submitted by certain vendors indicates that approximately 90 percent of expenses for operating their CRS communications networks represent those for circuits connecting subscribers to their systems' central computers. Assuming again that subscribers are charged with these expenses, Table 5.2 reports that ten percent of their total is allocated to reservation services, with the remaining 90 percent assigned to costs expected to be recovered from subscribers. Because the conversion, retention, and system-use incentives paid by vendors to travel agents are intended to increase the volume of reservations generated by each system's subscribers, these expenses would also be expected to be recovered from the resulting increase in booking fee revenue received by its vendor. Although we are unsure as to the exact terms on which these incentives are paid, Table 5.2 shows that our most likely allocation assigns their corresponding costs fully to reservation services.

The proper allocation of the remaining expense category, "CRS Marketing Efforts," is more difficult to determine. This is primarily because the category appears to include a combination of activities intended to expand vendors' respective subscriber networks, together with efforts to support current subscribers in enhancing their ability and willingness to employ the CRS as an integral part of their travel agency businesses. Analyzing the expense records submitted by certain CRS vendors suggests that roughly 40 percent of outlays reported as marketing expenses are associated with vendors' efforts to enlist new subscribers to their systems by acquainting non-subscribing agents with the capabilities of their systems. Such expenditures are analogous to the conversion, retention, and use incentives paid by vendors to new subscribers, in that they are primarily intended to increase the volume of booking fee revenue generated by their systems. Thus, we assign the same fraction of reported marketing outlays to vendors' production of reservation services, since we expect these expenditures to be ultimately recovered from booking fees.

In contrast, where they are itemized and described by vendors in sufficient detail to permit such analysis, the remainder (typically about 60 percent) of outlays classified as marketing expenses appear intended to develop current subscribers' reliance upon -- as well as their loyalty to -- the CRS systems they already employ. We do not know how extensively such efforts by vendors increase subscribers' utilization of their respective CRSs, and are thus indirectly recovered by vendors through the resulting increase in booking fee revenue paid by participants. Alternately, these activities may simply represent another category of the ongoing support vendors provide to subscribers, the costs of which would be expected to be (at least on average) recovered through the basic subscription charges vendors assess. As Table 5.2 indicates, our most likely allocation in effect makes this latter assumption, since it assigns 40 percent of the costs entailed in vendors' marketing efforts to reservation services, and the remaining 60 percent to servicing their subscribers.

Although Table 5.2 reports our best estimates of the correct allocation of these joint expenditures and their corresponding costs between reservation and subscriber services, their correct allocation is simply unknown. Hence the subsequent analysis tests the sensitivity of vendors' estimated costs for reservation and subscriber services, as well as the comparison of these costs to the revenues vendors receive, to different allocations of these joint costs. Specifically, in addition to estimates that employ the most likely allocation of expenditure categories reported in Table 5.2, we report the results of allocating 100 percent of each category of joint expenditures to reservation and subscriber services.

Tables 5.3 and 5.4 illustrate the allocations of the seven expenditure categories that result from these alternative assumptions. Although we view each of these alternate allocations as less likely to be correct than those shown in Table 5.2, we cannot rule them out. Perhaps more important, they establish a range of estimates of vendors' costs for reservation and subscriber services, as well as for the comparison of vendors' revenues to these estimated costs, that almost certainly includes the correct cost estimates and revenue-to-cost comparisons.

Once the allocation of vendors' reported expenditures between those for producing reservations services and servicing travel agents is performed, it is also necessary to adjust vendors' reported cash outlays to correspond more closely to the true economic costs vendors incur in producing these services. The vendors' reported expenditures may not reflect the costs they incur in supplying reservation services and supporting subscribers; this occurs because (for the variety of reasons indicated previously) corporate expense accounting systems such as those used by CRS vendors often fail to measure the economic costs of providing a product or service.

In response to this problem, the following discussion describes adjustments we made to the vendors' reported expenditures -- adjustments that are intended to improve the accuracy with which reported expenditure data measure the economic costs of supplying CRS services. These adjustments parallel those made in Chapter IV for the purpose of adjusting vendors' reported estimates of the accounting returns earned on their CRS investments to reflect more accurately the underlying economic returns generated by those investments. Table 5.5 summarizes the differences between vendors' treatment of expenditures in each of the categories appearing in Table 5.1 and the treatment of these outlays that is adopted in our analysis of CRS costs.

As Table 5.1 reported, one of the major costs faced by CRS vendors is associated with the investments in central computer, communications, and remote terminal equipment necessary to provide the capacity to generate, process, and store passenger reservation records. Most vendors report only a combined annual total for investment in these three types of equipment, which as indicated previously must be allocated between the central site (computer and communications) equipment and equipment located at subscribing travel agencies. Although certain vendors do report estimated depreciation separately for these equipment types, they typically have not disclosed the depreciation policies employed in making these estimates; accordingly, the accuracy and comparability of their reported depreciation estimates are difficult to evaluate.

In addition to depreciation, the economic cost associated with such investments includes the opportunity cost of committing funds to those investments rather than to an alternative income-generating purpose. Because the opportunity cost associated with investments is not commonly reported in accounting statements (which views the return or profit on an investment as a residual between actual revenues and expenses, rather than as a cost of obtaining investment capital), estimates of its magnitude must be constructed. We do so by applying the rate of return vendors could hypothetically have earned on alternative investments to the estimated total value of their investments in CRS equipment.

Thus, in order to develop consistent estimates of the cost associated with vendors' investments in CRS equipment, we first apply the depreciation rule summarized in Table 5.5 to each vendor's reported outlays for equipment investments. We assume (as we did in Chapter IV) that the value of vendors' investments in central processing, communications, and other equipment declines in straight-line fashion from its reported acquisition cost to zero residual value over a five-year period. Again, this short lifetime is intended to approximate the actual economic lifetime of equipment

Table 5.3

Alternate Allocation of CRS-Related Expenditure Categories: All Joint Expenditures Allocated to Reservation Services

	Percent Allocated to:	
Cost Category	Reservation Services	Subscriber Services
Computer, Communications, and Subscriber Equipment	65%	35%
CRS Product Development	100%	--
Central Computer Operations	100%	--
Communications Network Operation	100%	--
CRS Marketing Efforts	100%	--
Subscriber Conversion, Retention, and System Use Incentives	100%	--
Subscriber Training and Support	--	100%

Source: Based on descriptions of individual cost items accompanying CRS vendors' responses to DOT Information Directive, Items 13 to 16. See text for discussion.

Table 5.4

Alternate Allocation of CRS-Related Expenditure Categories: All Joint Expenditures Allocated to Subscriber Services

Cost Category	Percent Allocated to: Reservation Services	Subscriber Services
Computer, Communications, and Subscriber Equipment	55%	45%
CRS Product Development	100%	--
Central Computer Operations	100%	--
Communications Network Operation	--	100%
CRS Marketing Efforts	--	100%
Subscriber Conversion, Retention, and System Use Incentives	--	100%
Subscriber Training and Support	--	100%

Source: Based on descriptions of individual cost items accompanying CRS vendors' responses to DOT Information Directive, Items 13 to 16. See text for discussion.

Table 5.5

Comparison of Vendor-Reported and Adjusted Treatment of Individual CRS Expenditure Categories

Expenditure Category	Vendor Treatment	Adjusted Treatment
Computer, Communications, and Subscriber Equipment	Depreciated using various lifetimes, time patterns, and residual values	Depreciated completely over five years using straight-line method; 15% annual return on undepreciated portion included
CRS Product Development	Current expense[1]	Amortized completely over three years using straight-line method; 15% annual return on unamortized investment included
Central Computer Operations	Current expense	Current expense
Communications Network Operation	Current expense	Current expense
CRS Marketing Efforts	Current expense	Amortized completely over three years using straight-line method; 15% annual return on unamortized investment included
Subscriber Conversion, Retention, and System Use Incentives	Current expense	Amortized completely over three years using straight-line method; 15% annual return on unamortized investment included
Subscriber Training and Support	Current expense	Current expense

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1. Current expense indicates that the full value of reported expenditures is treated as an expense when those expenditures were recorded. Delta amortizes product development expenses over an undisclosed period.

investments in an environment characterized by rapid innovation in computer-services technology and intensifying competition among CRS vendors. We further assume that the annual opportunity cost associated with equipment investments is equal to 15 percent of their remaining (undepreciated) value during that year, a figure intended to correspond to the annual return that CRS vendors could have earned on capital invested in alternate activities.

In addition to requiring substantial investments in physical capital, Table 5.1 suggests that developing the capability to provide reservation services for sale to a CRS's participants requires substantial capital outlays for developing or acquiring the computer software and programming that provides the capability to create, retain, and access passenger reservation records. Again, however, vendors' reported outlays for this purpose do not correspond to the correct annual economic costs associated with these investments. As Table 5.5 indicates, vendors (with one exception) treat these product development outlays as current expenses, the full value of which is realized in the year that they are made, rather than as investments whose costs and returns are spread over a number of succeeding years.

Like investments in physical facilities, however, these outlays are required to establish, maintain, and enhance the vendors' ability to supply reservation services to CRS participants. They are thus intended to produce income over a period extending well beyond the year in which they are made. Determining the economic cost associated with these investments requires estimating annual values for their depreciation and opportunity costs, just as for vendors' investments in physical capital. Table 5.5 shows that as with vendors' investments to acquire computer and communications equipment, we do so by first assuming that the costs associated with each year's reported outlays for CRS system development are spread evenly over a subsequent three-year period. That is, we assume that the value of each year's investment in product development is amortized at a constant rate over a three-year period. This assumed lifetime appears consistent with the rapid pace of innovation in service features offered by competing CRSs, which quickly diminishes the value of previous investments. In order to account for the forgone potential return on capital invested in developing and enhancing vendors' capabilities to produce reservation services, opportunity costs are again calculated as 15 percent of the remaining value of cumulative historical outlays for CRS software development and related product development activities.

As Table 5.1 indicated, outlays for operating a CRS's central computer and communications network together represent 25 to 35 percent of each vendor's annual expenditures. These outlays include expenses to operate and support the central computer facility in which reservations records are created and stored; to maintain the computerized data bases that present schedule, fare, and seat availability information to subscribers; and to operate the communications network that connects the CRS host computer, internal reservations computers operated by CRS participants, and the system's subscribers. As Table 5.5 indicates, both the vendors and our analysis treat these outlays as current expenses, reflecting the fact that they are directly linked to the volume and timing of passenger reservations that are generated using each CRS; accordingly, their full value is treated as a cost of producing CRS services in the year that it is reported.

A major determinant of the value of a CRS system to its airline owner is the volume of reservations generated by the system, since this determines the magnitude of the revenues fees paid to the vendor by its participants, including the owner airline. The booking activity generated by a CRS system is influenced primarily by the extent of its subscriber and terminal network, and vendors make substantial expenditures to develop subscribers' use of and loyalty to their CRSs. These include the categories identified as "CRS Marketing Expenditures" and "Subscriber Conversion, Retention, and System Use Incentives" in Table 5.1, which together represented roughly 15 to 20 percent of most vendors' reported 1986 outlays.

As with vendors' investments in the central equipment and software that provide the capability to generate reservation services, expenses for developing and extending the subscriber network are intended to generate returns over a multi-year period beginning when they are made. Marketing expenditures and the various incentives vendors offer to travel agents represent investments in what are probably a system's most important intangible assets -- its subscribers' reliance on a CRS as an integral part of their business activities and their allegiance to a specific CRS. Recognizing the similarity of marketing expenditures and incentive payments to the other investments made by vendors, Table 5.5 reports that they are treated like vendors' investments in product development: their estimated annual costs consist of amortization of their initial values, together with opportunity costs equal to the returns that could have been earned on alternative investments.

As the table indicates, vendors' reported annual outlays for CRS marketing and travel agent conversion are amortized over a three-year period. Thus, the economic cost associated with each year's outlays for these purposes is assumed to be spread evenly over a three-year period beginning in the year these expenditures are recorded. Opportunity costs on the remaining unamortized value of these investments in each year are estimated as 15 percent of that value, the same estimate of forgone returns on alternative investments used to estimate the annual opportunity costs associated with vendors' other CRS-related investments.

The final major category of CRS vendors' reported expenditures includes outlays for training travel agents in the use of their systems, installing and servicing equipment at subscriber locations, and providing ongoing support for subscribers in using the vendors' systems. These outlays accounted for roughly 20 to 25 percent of the total 1986 expenditures reported by the various CRS vendors. One component of these expenditures, those for training subscribers in the use of particular CRSs, is analogous to the vendors' other investments, since it is intended to produce returns over a period extending well beyond the year in which it is made. However, because we are unable to separate training expenditures from vendors' other reported outlays for supporting subscribers, Table 5.5 reports that we treat all outlays included in this category as current expenses, in accordance with vendors' practices.

Table 5.6 presents alternative estimates of the average unit costs incurred by each of the five CRS vendors in producing reservation services during 1986. Each of these estimates reflects the various adjustments to vendors' reported 1986 expenditures discussed previously and summarized in Table 5.5. The range of estimates presented for each vendor corresponds to the three different allocations of various categories of costs between reservation and subscriber services that were summarized in Tables 5.2, 5.3, and 5.4.

After making these allocations and adjustments to vendors' reported outlays, each of the resulting alternative estimates of vendors' total 1986 costs for reservation services was divided by total 1986 bookings (including airline passenger segments, which account for 95 to 98 percent of each system's total bookings, as well as hotel, rental car, and miscellaneous other bookings) to produce an estimate of average unit costs for reservation services. As Table 5.6 indicates, the highest estimates of each system's unit costs corresponds to the allocation of all joint costs to the production of reservation services; the lowest estimates reflect the assignment of those joint costs to vendors' efforts to service their subscribers.

The unit cost estimates reported in Table 5.6 have two major implications. First, regardless of which cost allocation is adopted, APOLLO and SABRE appear to be able to produce reservation services at considerably lower average unit costs than their newest and smallest counterpart, DATAS II. As discussed in Chapter III, this apparent cost advantage may reflect their ability to exploit economies of scale in producing reservation services, the influence of learning or cumulative experience on their unit costs, or some combination of these two effects.

Our estimates also indicate that SYSTEMONE has average unit costs for producing reservations that are comparable to those of the largest vendors. However, it is not clear that these estimates represent costs for producing equivalent products, since in 1986 travel agents may have viewed the reservation-making capabilities and performance of SABRE and APOLLO as superior to those offered by competing systems. Further, we are not confident that Eastern has estimated and reported the full costs of developing and operating its CRS. Thus, we feel that the average unit costs estimated for SYSTEMONE in Table 5.6 may be understated.

It is also possible that these apparent cost differences partly reflect variation in the accuracy with which the vendors have been able to isolate the costs associated with their CRSs from those of their respective internal reservations systems. However, we can detect no systematic relationship between the level of effort individual vendors appear to have made to determine and report their CRS-related expenditures and the resulting unit cost estimates reported in Table 5.6.

Table 5.6

Estimated Average Unit Costs for CRS Reservation Services During 1986

	Average Reservation Service Cost:				
Cost Allocation	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
All Joint Costs Allocated to Reservation Services	$1.39	$1.24	$2.09	$1.35	$2.57
Most Likely Allocation of Joint Costs	$0.96	$0.79	$1.44	$0.75	$1.74
No Joint Costs Allocated to Reservation Services	$0.72	$0.53	$1.17	$0.53	$1.17

Source: Estimated from CRS vendors' responses to DOT Information Directive, Items 3, 4, and 13. See text for a discussion of how these average unit cost estimates were derived.

The second, and probably more important, implication of the estimates reported in Table 5.6 is that most vendors' average unit costs for producing computerized reservation services were below the booking fees they charged to participating carriers even before the recent increase in booking fees. Further, this conclusion seems to hold for at least the two largest systems (which together accounted for nearly 75 percent of airline passenger segments booked through CRSs during 1986) even when the division of vendors' costs between reservation services and subscriber services corresponds more closely to the allocation that assigns all joint costs to the latter.

Table 5.7 reports the estimated average costs that vendors incurred for servicing their subscribers during 1986. Like the previous estimates of the cost of producing reservation services, these estimates reflect the varying allocations of joint costs discussed above, as well as the adjustments to reported expenditures that were intended to improve the accuracy with which they reflect the true economic costs of the various services vendors provide to travel agents. The table presents average cost estimates for subscriber services both per subscriber location and per CRT in use at a typical subscriber office or location. These estimates thus differ in proportion to the average number of terminals used by each CRS's subscribers (see

Table 3.2), which varied from 3.3 terminals for the typical PARS installation to 5.2 terminals for SABRE installations.

The estimates reported in Table 5.7 indicate that all vendors incur substantial costs to install and maintain equipment at subscribers' offices, as well as to train and support travel agency employees. As with estimated reservation services costs, however, these amounts appear to vary substantially among vendors, with the highest estimated cost per subscriber location well in excess of 200 percent of the lowest value regardless of the specific cost allocation chosen. Although the somewhat narrower range of estimated average costs per CRT in use shown in the lower half of the table suggests that part of this variation is due to differences among systems in the average number of terminals operated per location, these latter estimates still reveal considerable variation among the costs different vendors incur in servicing their subscribers.

Table 5.8 reports average unit revenues by the five CRS vendors from both participants and subscribers during 1986. The average reservation fees paid by airline and non-airline participants in each system were computed by dividing vendors' reported revenue from each of these sources by the number of reservations recorded on participating airlines and for non-airline participants. The average revenue received by most vendors for the airline bookings closely matched their "advertised" booking fees.

Table 5.8 also indicates that the average revenue received by each vendor per non-airline booking or other transaction (again, these primarily represent hotel and rental car reservations) substantially exceeded the average airline booking fee during 1986. As the table reports, these fees averaged approximately $3.00 for four of the five CRS vendors, and the minimum amount by which any vendor's average revenue per non-airline booking exceeded that received from airline participants was $1.00. Although these fees appear quite high, the reservations and other transactions for which they are charged may be viewed by non-airline participants as sales that would not otherwise be made through their more traditional outlets, or as sales for which higher prices can be charged. In either case, non-airline participants may view even the apparently high fees charged by vendors for these transactions as acceptable. Perhaps more important, virtually all non-airline CRS participants have other readily available alternatives for distributing their services, thus reducing the importance of airline-owned CRSs as marketing devices and minimizing vendors' potential to exercise market power over them.

Finally, Table 5.8 reports the average revenue received by each CRS vendor during 1986 from subscribing travel agents, expressed both per subscriber location and per reservations terminal in use at those locations. There appears to be substantial variation among the five systems in the average level of charges to subscribers, particularly among the three smaller vendors (PARS, SYSTEMONE, and DATAS II). Because the average costs vendors incur to service their subscribers vary substantially, some variation among

Table 5.7

Estimated Average Unit Costs for CRS Subscriber Services During 1986[1]

	Annual Cost Per Subscriber Location				
Cost Allocation	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
All Joint Costs Allocated to Subscriber Services	$17,755	$14,837	$8,440	$10,888	$15,248
Most Likely Allocation of Joint Costs	$14,359	$11,573	$6,425	$ 9,368	$11,363
No Joint Costs Allocated to Subscriber Services	$ 8,409	$ 5,749	$1,429[1]	$ 5,170	$ 5,650

	Annual Cost per Subscriber CRT in Use:				
Cost Allocation	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
All Joint Costs Allocated to Subscriber Services	$4,062	$3,379	$2,516	$3,461	$5,131
Most Likely Allocation of Joint Costs	$3,285	$2,635	$1,915	$2,978	$3,824
No Joint Costs	$1,924	$1,309	$ 426[2]	$1,643	$1,901

Source: Estimated from CRS vendors' responses to DOT Information Directive, Items 1, 2, and 13.

1. The estimates contained in this table are averages based on DOT's allocation of costs to various activities. Therefore, they may not reflect the actual costs of serving any given location or CRT.

2. Although computed correctly, this estimate is unrealistically low because expenditures for support and servicing of PARS subscribers cannot be separately estimated from the information reported by its vendor; see Table 5.1, footnote 2.

Table 5.8

Average Unit Revenues Received by CRS Vendors[1] from Participants and Subscribers During 1986

Unit Revenue Measure	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
Average Reservation Fee Received from Participants:					
Airline Participants	$1.85	$1.84	$1.75	$2.07	$1.14
Non-Airline Participants	$3.14	$2.84	$2.96	$1.44	$2.87
All Participants	$1.96	$1.91	$1.82	$2.03	$1.19
Average Subscriber Revenue:					
Per Subscriber Location[2]	$11,911	$9,416	$5,457	$6,161	$9,474
Per Terminal in Use*	$ 2,725	$2,144	$1,626	$1,958	$3,188

Source: Estimated from CRS vendors' responses to DOT Information Directive, Items 1, 2, 3, and 12.

[1] The estimates contained in this table are averages based on DOT's allocations of costs to various activities. Therefore, they may not reflect the actual costs of serving any given location or CRT.

[2] Subscriber locations and terminals in use on December 31, 1986.

average revenue received from subscribers would be expected. Further, CRS vendors negotiate individually the specific charges they assess each subscriber. Hence, the average subscriber revenue figures reported by each vendor may conceal substantial variation in the revenue actually received from different subscribers, including agencies of comparable size or to which similar levels of service are provided.

Table 5.9 expresses the average unit revenues received by each vendor from airline participants and travel agent subscribers (from Table 5.8) as a percent of its estimated average cost incurred in providing reservation services (Table 5.6) and support to subscribers (Table 5.7). Because three estimates of average unit costs incurred by each vendor in providing reservation and subscriber services (corresponding to the three alternate allocations of joint expenses for producing the two services) were presented, Table 5.9 also reports three estimates of average revenue received as a percent of average unit cost for each vendor's provision of reservation and subscriber services.

Table 5.9 reveals wide variation in the relationship of average airline booking fees to vendors' estimated average cost per reservation, regardless of the particular cost allocation that is adopted. For example, under what we consider to be the most likely allocation of vendors' joint costs between reservation and subscriber services, average booking fee revenue varied from 65 percent to 276 percent of estimated average unit cost per airline passenger segment booked during 1986. Although the recent increases in booking fees announced by vendors -- which equalized basic booking fees at $1.85, while narrowing the range of fees for bookings made utilizing direct access to between $2.00 and $2.10 -- should reduce some of this variation, it is partly accounted for by the variation in vendors' average unit costs.

Table 5.9 also shows that under this most likely allocation of joint costs, booking fees charged by the two largest CRSs appeared to equal 192 percent (APOLLO) and 233 percent (SABRE) of their average unit costs for producing reservations during 1986, while one system (SYSTEMONE) appeared to charge booking fees equal to 276 percent of its average costs. (As discussed previously, these estimated average costs include a 15 percent return on vendors' estimated investments in both the physical capital and the intangible assets that comprise their systems.) Even under the allocation that assigns all joint costs to producing reservation services, APOLLO, SABRE, and SYSTEMONE appeared in 1986 to charge booking fees that exceeded their average unit costs. Finally, if the allocation that assigns all joint costs to subscriber services is the correct one, all vendors except Delta appear to charge booking fees that exceed their average unit costs for producing reservation services.

Finally, Table 5.9 also reports the relationship of each vendor's average subscriber fee revenue to its average cost for servicing travel agents during 1986. These relationships show less variation among vendors than those of booking fees to unit reservation costs (although, as discussed above, these average relationships may conceal substantial variation in the relationship of fees that certain vendors charge certain subscribers to the costs they actually incur in supporting those agents).

Table 5.9

Relationship of Average Unit Revenues Received by CRS Vendors to Estimated Average Unit Costs for CRS Services During 1986

Fee-Cost Relationship	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
Average Airline Booking Fee Revenue as a % of Estimated Average Unit Cost for Reservation Services:					
All Joint Costs Allocated to Reservation Services	133%	148%	84%	153%	44%
Most Likely Allocation of Joint Costs	192%	233%	122%	276%	65%
All Joint Costs Allocated to Subscriber Services	257%	344%	149%	388%	97%
Average Annual Revenue Received from Subscribers as a % of Estimated Average Unit Costs for Subscriber Services:					
All Joint Costs Allocated to Reservation Services	142%	164%	382%[1]	119%	168%
Most Likely Allocation of Joint Costs	83%	81%	85%	66%	83%
All Joint Costs Allocated to Subscriber Services	67%	63%	65%	57%	62%

Source: Computed from figures reported in Tables 5.6, 5.7, and 5.8.

[1] Although computed correctly, this estimate is implausibly high because expenditures for support and servicing of PARS subscribers cannot be separately estimated from the information reported by its vendor; see Table 5.1, footnote 2, and Table 5.7, footnote 1.

Under what we feel is the most likely allocation of joint costs to subscriber services, most vendors appeared to recoup 80 to 85 percent of their costs for supporting travel agents from the subscription, equipment rental, and other fees they assessed during 1986. Under a somewhat less likely but still plausible allocation of joint costs, subscriber fees might have covered as little as 57 to 67 percent of vendors' estimated costs for services provided to travel agents, but it is also possible that fees were set in the range of 120 to 170 percent of these estimated costs, as Table 5.9 indicates. Thus, it appears that all CRS vendors may, at least on average, charge their travel agent subscribers fees that are below the costs they incur in providing equipment installation, maintenance, training, and various other support services to those agents.

Table 5.10 expresses the relationships of vendors' 1986 average airline booking fee revenues to their estimated average unit costs for reservation services as an absolute difference between these two values. Thus, for example, it shows that under the most likely allocation of joint costs, APOLLO's reported average revenue per airline booking ($1.85, reported in Table 5.8) exceeded its estimated average cost per reservation produced ($0.96, from Table 5.6) by $0.89 during 1986. Depending on the allocation of joint costs, this difference ranged from $0.46 to $1.13 for APOLLO.

As Table 5.10 also indicates, the lowest estimate of this difference for each vendor (which, as the table shows, is negative for some, meaning that its average reported booking fee revenue is below its average estimated unit cost for producing reservations) corresponds to the allocation of all joint costs to vendors' reservation services activities, since this increases the estimated average cost per reservation. The greatest difference in each vendor's average reported booking fee revenue over its estimated average unit reservation service cost corresponds to the allocation of all joint costs to servicing subscribers.

Although the range of estimated dollar differences presented for each vendor in Table 5.10 is quite wide, it does appear likely that three vendors charged booking fees that exceeded their average unit costs for producing reservations during 1986. The estimated ranges by which they appeared to do so were $0.46 to $1.13 for APOLLO, $0.60 to $1.31 for SABRE, and $0.72 to $1.54 for SYSTEMONE. For two of the smaller vendors (PARS and DATAS II), the range of plausible differentials includes negative values, although only for DATAS II is our most likely estimate of average unit costs actually below average booking revenue received during 1986.

Because the two largest vendors recently increased fees for bookings made using their direct access capabilities, it is difficult to anticipate whether escalation in these vendors' costs for producing reservation services since 1986 is likely to have narrowed these estimated differentials. The booking fee increases (also to the $1.85 basic level and $2.10 for direct access bookings) imposed by PARS since 1986, while probably

Table 5.10

Difference Between Average Airline Booking Fee Revenue and Estimated Average Unit Cost per Booking During 1986

Cost Allocation	APOLLO	SABRE	PARS	SYSTEMONE	DATAS II
All Joint Costs Allocated to Reservation Services	$0.46	$0.60	$-0.34	$0.72	$-1.43
Most Likely Allocation of Joint Costs	$0.89	$1.05	$0.31	$1.32	$-0.60
No Joint Costs Allocated to Reservation Services	$1.13	$1.31	$0.58	$1.54	$-0.03

Source: Computed from figures reported in Tables 5.6 and 5.8.

not large enough to increase its revenue-cost differentials to the range of those estimated for SABRE and APOLLO, may have been sufficient to eliminate any uncertainty that PARS booking fees exceed its unit costs. Unless an allocation that assigns most joint costs to subscriber services is assumed, Delta's DATAS II system may operate at unit cost levels below booking fees, even after its recently announced increases take effect. In contrast, recently announced booking fee increases by SYSTEMONE will almost certainly maintain a substantial difference between its average revenue and average unit cost per booking, even if those costs have escalated rapidly since 1986. In sum, it appears that if vendors are exercising market power to exact above normal profits, they appear to be doing so by targeting participating airlines rather than subscribers.

D. Changes in the Vendors' Market Shares

Table 3.1 presented information on the vendors' national market shares. If the vendors enjoy market power, however, it stems from their ability to influence agency booking patterns in specific markets. Thus, national market share data are not particularly useful for analyzing whether the vendors have market power.

This section presents summary data on the vendors' market shares in large metropolitan markets. Appendix IV presents vendors' market share measured by revenues for 26 large hub markets and 31 medium hub markets in 1983 and 1986. Only one other study, the DOJ's 1983 Comments, has attempted to estimate the vendors' market shares in large urban markets. In preparing our analysis, we have followed the DOJ's procedures in allocating vendor sales to agency locations; therefore, we are able to determine trends in market concentration in major markets since 1983.

Table 5.11 presents data on the vendors' market shares in the ten largest domestic markets. In six of the ten largest markets, SABRE and APOLLO were the two dominant CRSs. Either SABRE or APOLLO was the dominant system at three of the remaining four markets, while SYSTEMONE was the dominant vendor in Miami. Between 1983 and 1986, Table 5.11 shows that the dominant vendors' market share increased at three of the ten largest traffic hubs (Chicago, San Francisco, and Washington, D.C.), decreased at six (New York, Los Angeles, Dallas/Ft. Worth, Atlanta, Miami, and Houston), and remained essentially unchanged in Denver.

Between 1983 and 1986, two-firm concentration declined in eight of the ten largest markets. The decline in concentration was nominal in most cases (between 0.7 and 3.4 percentage points) but was significant in both Atlanta (down 15.3 points) and Houston (down 15.5 points). New York City and Houston were the only markets in the top 10 where one of the two largest vendors was replaced by a competitor. In New York, APOLLO was replaced by PARS, and in Houston SYSTEMONE was replaced by APOLLO. Atlanta and Miami were the only large traffic hubs in the top ten where the dominant vendor in 1983 was not also the dominant vendor in 1986. In Atlanta, APOLLO replaced SYSTEMONE as the dominant vendor, and in Miami SYSTEMONE displaced SABRE. DATAS II increased its market share in Atlanta from 3.6 percent to 21.6 percent, while SYSTEMONE dropped 16.7 percentage points in market share. In Miami, SYSTEMONE increased its market share by 28.3 percentage points while SABRE lost 19.6 percentage points.

Table 5.12 presents summary information on changes in vendors' market shares at the 26 large and 31 medium traffic hubs between 1983 and 1986. Between 1983 and 1986, SYSTEMONE increased its market share at 20 of the 26 large hubs, and at 25 of 31 medium hubs; DATAS II increased its share at 20 large and 19 medium hubs; and APOLLO increased its market share at 19 large hubs and 17 medium hubs. By contrast, PARS lost market share at 15 large hubs and 14 medium hubs, and SABRE lost market share at 21 large hubs and 17 medium hubs. In fact, SABRE's market share declined by more than ten percentage points at ten large hubs: Boston, Honolulu, Houston, Memphis, Miami, Orlando, St. Louis, Salt Lake City, Seattle, and Tampa. SABRE also lost market share of 10 percentage points or more at nine medium hubs: Anchorage, Cincinnati, Nashville, New Orleans, Omaha, Rochester, San Antonio, Syracuse, and West Palm Beach. Appendix IV provides additional information on changes in the vendors' market shares.

While SABRE lost significant market share at several large and medium hubs, APOLLO increased its market share significantly (more than 10 percentage points) at six large hubs (Honolulu, Houston, Memphis, Orlando, Salt Lake City, and Seattle), and at five medium hubs (Anchorage, Omaha, Rochester, Syracuse, and West Palm Beach).

TABLE 5.11

TWO-FIRM CONCENTRATION RATIOS BASED ON AGENCY REVENUES TEN LARGEST MARKETS[1]

	1983 Primary CRS Vendor[2]		1986 Primary CRS Vendor	
New York City (includes Newark)	SABRE	62.1%	SABRE	61.3%
	APOLLO	16.1%	PARS	13.5%
		78.2		74.8%
Chicago	APOLLO	47.2%	APOLLO	50.5%
	SABRE	45.9%	SABRE	41.8%
		93.1%		92.3%
Los Angeles (includes Ontario)	SABRE	47.9%	SABRE	41.2%
	APOLLO	33.4%	APOLLO	39.4%
		81.3%		80.6%
Dallas/Ft. Worth	SABRE	94.9%	SABRE	91.5%
	DATAS II	2.0%	DATAS II	4.4%
		96.9%		95.9%
Atlanta	SYSTEMONE	43.8%	APOLLO	27.2%
	APOLLO	25.8%	SYSTEMONE	27.1%
		69.6%		54.3%
San Francisco (includes San Jose)	APOLLO	41.5%	APOLLO	42.3%
	SABRE	38.2%	SABRE	39.4%
		79.7%		81.7%
Denver	APOLLO	76.1%	APOLLO	76.0%
	SABRE	19.0%	SABRE	15.9%
		95.1%		91.9%
Washington, D.C.	SABRE	53.1%	SABRE	56.7%
	APOLLO	34.4%	APOLLO	27.6%
		87.5%		84.3%
Miami	SABRE	61.4%	SYSTEMONE	44.8%
	SYSTEMONE	16.5%	SABRE	41.8%
		77.9%		86.6%
Houston	SABRE	86.9%	SABRE	57.5%
	SYSTEMONE	4.5%	APOLLO	18.4%
		91.4%		75.9%

Source: Vendor-supplied data tapes and 1983 DOJ Comments.

1. Based on domestic scheduled passenger enplanements.

2. The primary vendor is defined as the CRS that books the greatest number of total agency bookings.

TABLE 5.12
NUMBER OF LARGE AND MEDIUM HUBS AT WHICH CRS VENDORS GAINED OR LOST MARKET SHARE (IN TERMS OF REVENUES) 1983 AND 1986[1]

	DECREASE IN MARKET SHARE		NO CHANGE	INCREASE IN MARKET SHARE	
CRS Vendors	More than 10 Percentage Points	1 to 10 Percentage Points	IN MARKET SHARE	1 to 10 Percentage Points	More Than 10 Percentage Points
LARGE HUBS[2]					
SYSTEMONE	2	--	4	17	3
DATAS II	--	--	6	19	1
APOLLO	--	5	2	13	6
PARS	1	14	6	4	1
SABRE	10	11	--	3	2
MEDIUM HUBS[3]					
SYSTEMONE	--	2	4	21	4
DATAS II	--	2	10	16	3
APOLLO	3	9	2	12	5
PARS	4	10	8	9	--
SABRE	9	8	2	8	4

Source: Airlines Reporting Corp. (ARC) "1986 Years Location Sales by Airlines."

1. Air traffic hubs are the cities and Standard Metropolitan Statistical Areas receiving aviation services. Individual communities fall into one of four hub classifications (large, medium, small, and nonhub) as determined by each community's percentage of the total enplaned revenue passengers. Source: Airport Activity Statistics, 1986.

2. A large hub enplanes 1.0 percent or more of total enplaned passengers. In 1986, there were 27 large traffic hubs. Our analysis reflects only 26 large hubs because we have included data for Newark within the New York metropolitan statistical area (MSA).

3. A medium hub enplanes 0.25 to 0.99 percent of total enplaned passengers. In 1986, there were 36 medium hubs. Our analysis reflects only 31 medium hubs because we have included data for Ontario within the Los Angeles MSA and data for San Jose with the San Francisco MSA. We have excluded San Juan, Puerto Rico, and Kahului and Lihue, Hawaii, because data for these hubs did not fall within a designated domestic MSA.

The market share gains achieved by a CRS vendor in a given market do not necessarily mean that a vendor captured or converted agencies from another vendor. In most situations the vendor that gained market share did so by capturing a larger share of an expanding market, including the enrollment of previously non-automated agencies. In some cases, however, (Honolulu, Houston, St. Louis, and Salt Lake City, to name a few), the vendor with the greatest decline in market share also experienced an absolute decline in agency revenues between 1983 and 1986. In sum, between 1983 and 1986, the vendors' market shares in large and medium hubs were far from static. The data indicate that SYSTEMONE was the major winner, followed by DATAS II and APOLLO, while SABRE was the big loser, followed by PARS.

E. Halo Effect

The profitability estimates presented in Chapter IV rely upon the vendors' estimates of the size of the halo effect. In this section, we estimate the halo effect using multiple regression analysis, a statistical technique that seeks to quantify the relationship between two or more variables.

Our hypothesis is that the principal determinant of the share of revenues ticketed on a vendor airline by an agency is that airline's share of total scheduled departures from the airports serving the metropolitan area where the agency is located. If no other factors influenced agency booking patterns, the vendor airline's revenue share in that market should be approximately equal to its departure share. Other factors, however, may induce agents to book a greater or less than proportional share of ticket sales on its CRS vendor's airline.

If an unbiased relationship between a vendor airline's departure and revenue shares were depicted by a 45 degree line sloping upward from the origin, a greater than proportional share of bookings would appear as a slope greater than one, at least over some part of the total range of air carriers' departure shares. To estimate the parameters determining the slope and position of a function relating revenue shares sold by travel agents to a vendor's share of local airline departures, while allowing the slope to vary over the range of departure shares, we include both departure share and the square of departure share in our model. No intercept term is appropriate, since there can be no halo effect for an airline that is absent from the relevant market.

When these parameters are estimated from observations on the behavior of agencies subscribing to a given CRS, a systematic tendency to book a disproportionately large share of revenues on the vendor airline can be interpreted as the halo effect, provided that other influences are controlled for. The most important of these influences is override commissions. Unfortunately, we do not know the exact terms of any airline's override agreements with individual agents, nor do we have information on the amount of overrides paid. Although such information would help us refine our estimate of the halo effect, we do not believe that its absence seriously undermines our conclusions regarding its size.

The data obtained from the vendors do include the identity of each agency location receiving overrides in 1986. These data are used to generate binary or "dummy" variables, which take the value of one when an agency receives overrides from a given vendor airline and zero otherwise. (The use of dummy variables is a widely employed statistical technique for representing discontinuous or qualitative data.)

Multiplying these dummy variables by the terms representing the vendor's departure share (linear) and departure share squared (quadratic) in the agent's market area, we generate two "interaction" variables for each vendor paying overrides. These variables are equal to the departure share and the departure share squared, respectively, of an agent's CRS vendor if the agent receives overrides from the airline in question and zero otherwise.

The result of including these variables in the regression is to augment or diminish the coefficients of departure share and departure share squared (still with no intercept), thus shifting the estimated relationship up or down according to whether the override sways agents for or against the vendor airline. The original departure-share and share-squared coefficients are thus purged of override influence and, unless they are influenced by other unidentified factors, express only the vendor airline's market presence and the halo effect.

Our model is: $Y = b_1X1+b_2X2+b_3\ DA1+b_4\ DA2 + b_5DB1 + \ldots\ldots + e$

Y = Vendor airline A's share of the revenue ticketed by an agent subscribing to its CRS.

X1 = Vendor airline A's share of scheduled departures in the agent's metropolitan market.

X2 = $X1^2$; that is, the square of scheduled departures.

DA1 = X1 if the agent receives override commissions from vendor airline A and zero otherwise.

DA2 = X2 if the agent receives override commissions from vendor airline A and zero otherwise.

DB1 = X1 if the agent receives override commissions from vendor airline B and zero otherwise.

DB2 = X2 if the agent receives override commissions from vendor airline B and zero otherwise.

DB1 = X1 if the agent receives override commissions from vendor airline C and zero otherwise.

DC2 = X2 if the agent receives override commissions from vendor airline C and zero otherwise.

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e = An error term, assumed to be normally distributed.

Each observation in our data set represents an agency location that subscribed to a CRS during 1986 in one of 57 consolidated metropolitan statistical areas containing large and medium hubs.

Five equations were estimated. Each equation included only the observations of those agents who used a given vendor airline's CRS as their primary system, numbering from 1,283 for DATAS II subscribers to 6,571 for SABRE subscribers in these 57 urban areas.

Under our hypothesis, a positive halo effect is shown by a coefficient for X1 greater than one and a negative coefficient for X2 -- that is, a curve that would depart from the origin with a slope greater than one and curve downward toward the 45-degree diagonal line. Override commissions from the vendor airline would presumably raise the estimated curve, implying a positive coefficient for DA1 and a negative coefficient for DA2. Override commissions paid by competing carriers would presumably offset the effect of the vendor airline's override commissions, implying a negative coefficient for DB1 and a positive coefficient for DB2.

Our statistical results are reported in Table 5.13. The explanatory power of our regression model is quite high -- between 82 percent and 94 percent of the variation in the dependent variable is explained by our model. Moreover, the signs of the parameters (positive or negative) conform to our expectations. Finally, most of estimated coefficients are statistically significant.

As expected, the vendor airline's share of scheduled departures has a major influence on the share of revenues the vendor airline receives from agents who subscribe to its CRS. The magnitude of the departure share coefficients indicate that subscribers generally book disproportionately large shares of ticket revenues on their vendor airlines. Also, the coefficient of the square of departure share is negative across all equations, confirming our prior expectations that above some departure share further increases in a vendor airline's local departure share do not produce proportional increases in subscriber bookings. We also observe a consistent tendency for override commission payments from the host airline to intensify this effect, and for override payments from competing CRS vendors to reduce it.

Chart 1 depicts the predicted booking patterns of SABRE and APOLLO subscribers over the actual range of departures shares of American and United. As shown, the CRS subscription relationship in isolation is associated in each case with a curve arching above the diagonal that represents a hypothetical neutral booking pattern. If agents in the same locations received overrides only from their vendors, the predicted relationship would be at the highest level shown on the graphs. If SABRE agents were to receive overrides from both American and United, the vendor preference would be partially offset, yielding the intermediate curve in the left graph. For APOLLO subscribers, the estimated effect of American's overrides is so small that it generated no appreciable shift in the curve.

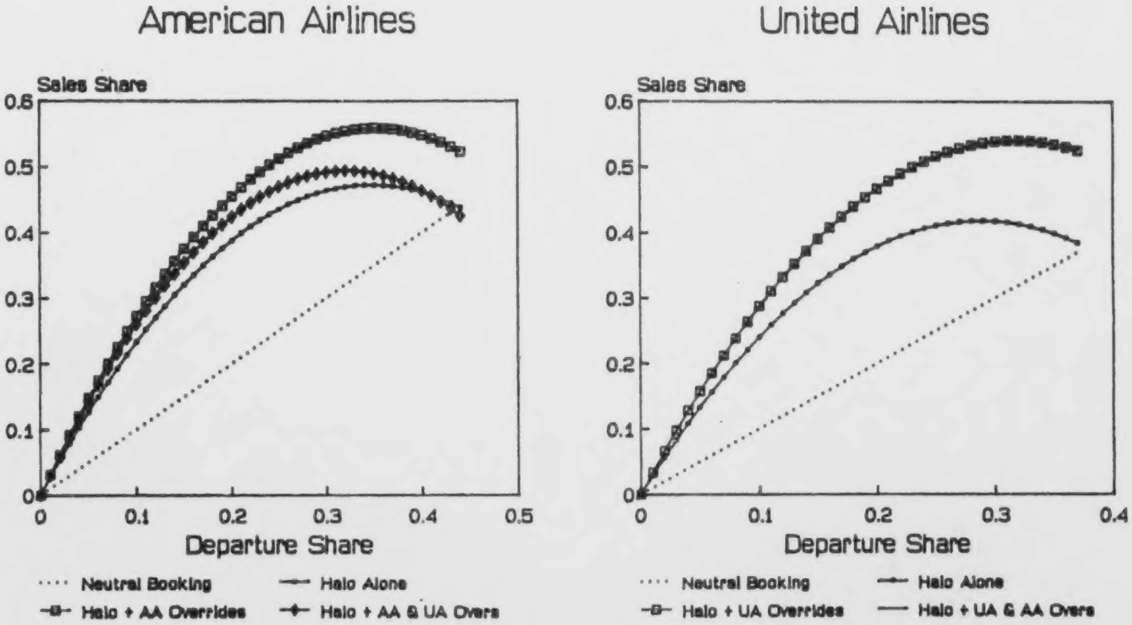
The halo effect implied by these coefficients is quite pronounced. We estimate the halo effect by calculating the difference between a vendor's predicted revenue share (in the absence of any override payments) and its share of departures in that market, expressed as a percent of that vendor's actual share of revenues generated by its subscribers in that market. The revenue-weighted nationwide average halo effects for the five vendor airlines are: American, 39.9 percent; United, 35.7 percent; TWA, 16.4 percent; Eastern, 12.1 percent; and Delta, 35.2 percent. Our estimates of the halo effect for TWA and Eastern are comparable to those inferred from these vendors' internal analyses of the size of the halo effect; our estimates for American, Delta, and United are considerably larger than those we inferred from their internal analyses.

TABLE 5.13
COEFFICIENTS OF HALO EFFECT REGRESSIONS
VENDOR-AIRLINE

	American	United	TWA	Eastern	Delta
Vendor Departure Share: X1	2.726 (61.8)	2.906 (31.1)	1.982 (34.1)	1.765 (51.8)	2.771 (51.3)
Vendor Departure Share Squared: $X1^2=X2$	-3.934 (-32.2)	-5.049 (-14.1)	-2.047 (-16.7)	-2.343 (-21.1)	-3.535 (-23.8)
American Overrides x X1	0.456 (6.73)	-0.0213 (-0.232)	-0.547 (-4.56)	-0.253 (-2.12)	-1.251 (-6.45)
American Overrides x X2	-0.598 (-3.27)	0.0770 (0.245)	1.594 (6.33)	0.885 (2.68)	3.021 (5.98)
United Overrides x X1	-0.0990 (-1.80)	0.503 (4.81)	-0.0440 (-0.546)	-0.182 (-3.30)	-0.154 (-1.46)
United Overrides x X2	-0.279 (-1.82)	-0.328 (-0.833)	0.154 (0.911)	0.418 (2.46)	0.200) (0.786)
TWA Overrides x X1	-0.306 (-4.77)	0.0484 (0.494)	0.700 (7.38)	-0.0425 (-0.308)	-0.946 (-4.73)
TWA Overrides x X2	0.776 (4.37)	0.0488 (0.144)	-1.299 (-6.44)	-0.180 (-0.358)	2.252 (4.55)
Eastern Overrides x X1	-0.0474 (-0.767)	-0.446 (-5.12)	-0.229 (-2.42)	0.137 (2.55)	0.557 (4.47)
Eastern Overrides x X2	0.114 (0.656)	1.175 (3.72)	0.626 (3.13)	-0.257 (-1.56)	-0.785 (-2.68)
Delta Overrides x X1	0.324 (4.78)	-0.0554 (-0.553)	0.134 (1.16)	-0.0825 (-0.929)	0.155 (1.57)
Delta Overrides x X2	-0.628 (-3.46)	0.470 (1.34)	-0.722 (-2.98)	-0.362 (-1.55)	0.0551 (0.227)
$\bar{R}^2$	0.826	0.885	0.912	0.871	0.943
F	2564	2730	2062	1655	1740
Degrees of Freedom	6472	4241	2386	2939	1269

CHART 1

Halo and Override Effect



VI. VENDOR-SUBSCRIBER CONTRACTS

A. Introduction

The contractual relationship between vendors and travel agency subscribers has been a focus of some debate over the past several years. Some travel agency groups and smaller vendors have complained that various provisions that appear in the subscriber contracts used by the large vendors impede CRS competition and are unfair to travel agents.[1] The most common complaints focus on liquidated damages clauses requiring a subscriber who switches systems before expiration of its subscription contract to recompense the original vendor both for the subscriber's own future subscription payments and also for booking fees the vendor would have received from participating carriers.[2] Other assertedly unfair contract provisions include rollover clauses, under which the contract is automatically renewed for a five-year term with any addition of equipment, and minimum use clauses, which require the subscriber to use a vendor's equipment for a minimum number of transactions.

This chapter discusses contractual relationships between vendors and their travel agent subscribers, focusing particularly on the liquidated damages clauses contained in vendors' standard contracts. We first discuss the CAB's treatment of vendor-subscriber contracts. We then describe the liquidated damages, rollover, and minimum use clauses that typically appear in vendor-subscriber contracts and review the developments that have taken place in this area since the CRS rules went into effect. Next, we briefly consider the validity of liquidated damages clauses under state contract law. We then review the limited available evidence on the effect of the clauses on CRS competition.[3]

Viewed strictly as a matter of contract law, the major vendors have a plausible argument for the enforceability of their standard contracts. However, it also appears that the most controversial provisions of the contracts do make it somewhat harder and more expensive for other vendors to convert agents. The question of whether these clauses create such barriers to expansion by other vendors that their use is an unfair method of competition is a debatable one. Even more debatable is the question of whether and how action to loosen contractual restrictions on subscriber mobility among systems would impact competition in the airline industry.

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[1] See, e.g., Docket 43202, M.I.T.A., Enforcement Complaint Against American Airlines and United Air Lines; Docket 45140, Petition of the American Society of Travel Agents for a Rulemaking.

[2] Liquidated damage clauses are contract provisions by which the parties agree in advance on the amount of damages that will have to be paid by a party who breaches the contract.

[3] Travel agents have complained that other clauses, such as "one-sided" indemnification provisions, are also unfair. Such clauses are not considered here, since they have no apparent direct effect on airline competition.

B. The CRS Rules

As discussed in Chapter II, both the CAB and DOJ cited the difficulty of converting subscribers from one system to another as a significant economic barrier to entry or expansion in the CRS industry. In addition to travel agents' reluctance to incur the expense and disruption of switching systems, some vendors were signing agents to contracts containing provisions that, in the CAB's view, unfairly impeded entry by other vendors. Such provisions included lengthy contract terms and prohibitions on the use of more than one system.[4] Restrictions on new entrants' ability to market their systems to agents who were already automated were particularly crucial to the CAB because it considered the travel agent market to be "saturated" -- although 35 percent of all travel agencies were unautomated, those agencies accounted for only 12 percent of the air transportation sold by travel agents.[5] As a consequence, entrants would need to have some ability to "convert" agents from other systems in order to build a viable subscriber base. Concern about entry by new vendors or expansion by smaller vendors was based on the assumption that, in the long run, competition from these sources would restrict the market power of the large vendors.

The general approach chosen by the CAB was to prohibit restrictive subscriber contract provisions, but only those that were "clearly designed to prevent travel agents from switching systems."[6] Thus, it set the maximum contract length at five years because it saw no independent business justification for a longer term, and because it accepted American's argument that shorter terms would undercut subscribers' abilities to obtain the full benefit of investment tax credits.[7] The CAB also decided to prohibit vendors from directly or indirectly precluding a subscriber from obtaining or using any other system (14 C.F.R. 255.6(b)). Finally, because the CAB concluded that ties between air transport dominance and the ability to compete as a CRS vendor could deter entry, it prohibited system vendors from requiring agents to use their systems to book their flights or conditioning the payment of commissions on the use of their CRSs.
(14 C.F.R. 255.6(c),(d)).

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[4] EDR-466C at 17, 49 Fed. Reg. 11644,11655 (March 27, 1984 "NPRM"); DOJ Comments at 58-61.

[5] NPRM at 16-17.

[6] Regulation ER-1385 at 41, 49 Fed. Reg. 32540, 32556 (August 15, 1984), (Final Rule).

[7] *See* 14 C.F.R 255.6(a); NPRM at 52; Final Rule at 41.

Although the CAB expressed concern about the possible anticompetitive effects of "excessive" liquidated damages provisions, it decided not to regulate such provisions for several reasons. First, the CAB concluded that state courts applying contract law were better equipped than the CAB to determine whether, in particular circumstances, liquidated damages provisions were excessive. Second, the CAB believed that the potential danger of such clauses was reduced by its limitation of subscriber contracts to a "reasonable" five-year term. Finally, the CAB believed that the prohibition against contract clauses requiring exclusive use of the vendor's system would open the market for entrants.[8]

C. Vendors' Development of Liquidated Damages Clauses

Each of the vendors has, at one time or another, included some form of liquidated damage clause in its subscriber contracts. However, the vendors vary somewhat in their approach to this issue, and each has revised its contract language over time. This section will describe the categories of damages covered by these clauses. Individual variation among vendors in the way their contracts address each category will be noted.

Liquidated damages clauses in subscriber contracts require travel agents who switch systems or otherwise breach their contracts before their expiration to pay one or more of the following elements of damages:

a) Remaining subscription fees. Some portion of the monthly lease or installation charges for the remaining term of the contract.[9]

b) Promotional support. Repayment of all or some portion of any inducements paid to the agency for signing with the vendor. Such inducements typically include waived installation and/or training charges and may also include other "financial support" such as cash payments (including payments to reimburse the agency for liquidated damages it might have owed to a vendor whose system was being replaced), free airline tickets, and advertising support.

c) Lost booking fees. Replacement of booking fee revenues the vendor would have received from participating carriers if the subscriber had continued to use the vendor's system for the remaining life of the contract. The contracts with such a provision include a formula for calculating the lost booking fees (booking fee x number of CRTs x number of months remaining on the contract x some measure of the average number of monthly bookings per CRT[10]).

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[8] Final Rule at 42.

[9] The SABRE and APOLLO contracts require payment of 80 percent of remaining subscription fees. PARS and SYSTEMONE require 100 percent. The APOLLO contract also requires payment of monthly "variable" charges (i.e., charges for each use of certain system enhancements).

The standard subscriber contracts of SABRE, APOLLO and PARS have included all of the three elements in their liquidated damages clauses since approximately mid-1985. Subscriber contracts used by these three vendors prior to that time either had no liquidated damages clauses or had clauses that specified only the first two elements described above. SYSTEMONE's standard liquidated damages clause covers the first two elements listed above and has a third provision requiring a subscriber who breaches his contract to pay any other damages incurred by SYSTEMONE as a result of the breach. DATAS II used a liquidated damages clause covering the first two elements of damages listed above in contracts signed between 1982 and January 1985. It states that its current subscriber contracts do not contain a liquidated damages clause. However, in cases where DATAS II has provided promotional support to an agency to induce it to become a subscriber, it requires the agency to sign a side agreement in which it agrees to repay such promotional support if it switches to another system.

During the last half of 1985 and the first half of 1986, SABRE and APOLLO placed a high priority on persuading their existing subscribers to sign contract renewals, offering inducements such as several months' free equipment rental. In addition to commencing new five-year contract terms and introducing the revised liquidated damages provisions, new contracts have included several other new or revised clauses as well. In later versions of their standard contracts, SABRE and PARS have included a rollover clause providing for the automatic renewal of the contract whenever any new equipment (such as an additional reservations or ticketing terminal) was installed.[11] APOLLO has included a rollover clause, triggered by the addition of new locations, in an estimated five to ten percent of its subscriber contracts.[12] The new SABRE and APOLLO contracts also include

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[10] The SABRE standard contract uses the average number of bookings per CRT on a systemwide basis (200). The APOLLO contract uses a "monthly minimum guarantee," defined as 50 percent of the subscriber's average number of bookings for the first six months of its contract. The PARS contract uses the subscriber's average bookings for the twelve months prior to termination of the contract. The DATAS II and SYSTEMONE contracts have no explicit booking fee provisions.

[11] The clause was included in the contracts covering approximately 5000 of SABRE's locations and 939 PARS locations. Responses to Information Directive, Item 31.

[12] These three vendors have recently announced that they would no longer include rollover clauses in new subscriber contracts, and would not seek to enforce such clauses in existing contracts. However, all of the vendors apparently continue their practice of seeking voluntary contract renewals whenever equipment is added.

"minimum use" provisions under which the subscriber guarantees that it will use each piece of equipment for a minimum number of booking transactions each month.[13] Delta has stated that it has recently included a minimum use provision in its standard DATAS II contracts in response to such provisions in other vendors' contracts.[14,15] PARS contracts contain a general provision requiring the subscriber to use its equipment.

The renewal campaigns mounted by the major vendors appear to have been successful.[16] Since mid-1985, a substantial majority of the subscribers to SABRE and APOLLO have been either newly automated, converted, or signed to renewed five-year contracts containing the revised clauses.[17] United reports that as of the end of 1986, over 90 percent of its subscriber locations were covered by some form of liquidated damages clause, and that the "vast majority of existing contracts" contain the new liquidated damages provisions that include a booking fee element.[18] American estimates that, between April 1985 and January 1987, it signed approximately 8,000 subscriber contracts containing a liquidated damages clause with a booking fee provision.[19] TWA states that in 1985 and 1986 it entered into approximately 2,200 subscriber contracts containing liquidated damages clauses.[20]

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[13] SABRE's clause sets the monthly minimum at the greater of 75 percent of the average number of bookings per terminal for the first year of the contract or 100 bookings per month. APOLLO's "monthly minimum guarantee" is 50 percent of the subscriber's average per-terminal bookings during the first six months of the contract.

[14] Docket 45140, Answer of Delta Air Lines, Inc., to Petition for Rulemaking.

[15] During our discussions on the state of competition in the CRS industry, a number of parties have suggested that minimum use provisions violate the prohibition on contract terms prohibiting subscribers from acquiring or using a second system. A travel agent has filed a third party enforcement complaint alleging that Northwest's and PARS' sales practices in Memphis also violate that prohibition. Complaint of Aanover Travel Inc. against Northwest Airlines and PARS Marketing Partnership, Docket 45593.

[16] The vendors' responses are somewhat ambiguous on the question of how many of their subscriber contracts contain the various liquidated damages clauses.

[17] A review of the corporate documents provided by United and American indicates that the two vendors had a relatively inflexible policy of refusing to negotiate contracts of shorter duration or with modified liquidated damages clauses.

[18] It reports that it signed over 5,505 new or renewed subscriber contracts in 1985, with another 2,012 in 1986. United responses to Information Directive, Items 1, 28, 29, and 33.

D. Enforceability of Liquidated Damages Clauses

The new liquidated damages provisions introduced by SABRE, APOLLO and PARS after the CRS rules went into effect have been the subject of a number of lawsuits in various jurisdictions. However, the question of the enforceability of the clauses under state contract law has not been settled definitively.[21] This section discusses the general contract law principles that would be applied by a court in considering whether to enforce or invalidate such a clause, particularly its booking fee element. The circumstances of individual disputes, as well as the details of each state's contract law, can vary.[22] This discussion should therefore not be viewed as a definitive statement on the validity of these clauses.

Liquidated damages clauses appear with some frequency in commercial contracts. Their purpose is to settle in advance possible disputes about the damages to which one party to the contract would be entitled in the event the other party breached the contract. Courts will generally enforce such a clause if actual damages would be difficult to ascertain, and if the clause makes a reasonable estimate of the damages that would result from a breach. Conversely, a clause that is unreasonable, usually because it is excessive, may be viewed as being designed to deter a party from breaching, and to punish the party that breaches despite the deterrence. A court will likely not enforce such a clause which is commonly considered to be a penalty.[23]

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[19] American responses to request numbers 1 and 29. It is not clear how many, if any, of the reported renewals were the result of SABRE's automatic rollover clause.

[20] TWA response numbers 1 and 28.

[21] United has obtained a favorable ruling in at least one of the lawsuits where it has sought to enforce the current generation of liquidated damages clauses. See United Air Lines, Inc. v. Austin Travel Corp., 87 Civ. 1262 (MP)(S.D.N.Y., February 24, 1988). It has also received a ruling upholding an earlier liquidation clause that required payment of 80 percent of the agents future subscription payments. See United Air Lines, Inc. v. PMR, Inc. Civ. No. 87-0061-A (E.D.Va., Final Order dated June 17, 1987).

[22] Subscriber contracts typically contain a "choice of law" clause under which the parties agree that the contract will be interpreted under the law of the vendor's home state. Many contracts also contain a clause under which the subscriber consents in advance to submit to the jurisdiction of the courts of the vendor's home state.

[23] See Restatement of Contracts, (Second), §356 (1979) U.C.L.; §§ 2-718, 2-719 (1976).

The question of whether the clauses in CRS contracts are enforceable would largely depend on whether they are a reasonable estimate of the vendors' actual damages.[24] That question would turn on two issues: (1) whether, in principle, the vendor would be entitled to damages in some amount for each element covered by the clause, and (2) for each element, whether the measure contained in the clause is a fair estimate of the vendor's actual damages.

As to the first issue, the major vendors have a plausible argument that they would be entitled to recover some amount of damages for each of the three types of injury covered by their standard liquidated damages clauses. A vendor would clearly be entitled to recover the profits it expected to receive by virtue of the agent's subscription fees. Similarly, the vendor would have a strong claim to recovery of at least a portion of any up-front payments made to the agent as inducements to subscribe, particularly if the vendor expected to recoup those payments over the five-year life of the subscriber contract.

The third element is more controversial. The booking fee element tends to account for the largest portion of liquidated damages claims. In addition, as a conceptual matter, some argue that it is unfair to charge a travel agent for fees that would have been paid to the vendor by a different group of CRS customers -- participating airlines. Vendors counter that they have a reasonable expectation that the subscriber's use of their CRSs will generate booking fees, and that they depend on booking fees to earn a fair return on their investment. The subscriber's breach cuts the vendor off from these fees as well as from those the subscriber pays directly.

Lost booking fee profits would likely be recoverable as consequential damages if the subscriber had reason to foresee, at the time it signed its subscription contract, that the vendor would incur booking fee losses as a result of its breach.[25] The minimum use clauses in both the SABRE and APOLLO contracts provide fairly clear contractual notice. In addition, the vendors would argue that the liquidated damage clause itself provides some notice to the subscriber that a breach will result in lost profits from booking fees. Thus, it appears that the vendors have a fairly strong argument for their proposition that each of the three types of damages set forth in their standard subscriber contracts represents a compensable injury.

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[24] As the following discussion demonstrates, actual losses would arguably be difficult to ascertain with certainty. Such a conclusion might be undercut, however, by vendor statements in support of the reasonableness of their liquidated damages clauses that, if necessary, they could prove contractual damages in excess of those called for in the clauses.

[25] See Restatement of Contracts (Second), §3515 (1979); Corbin, Corbin on Contracts, §1007 (1964).

The question of whether the specific measures contained in the contracts are reasonable approximations of the vendors' actual damages is less clear. In addition, the answers to the question may vary depending on the specific contract. As a general matter, a plaintiff should only be entitled to recover the lost profits and reliance damages caused by a breach. Any costs saved because the plaintiff would not have to perform under the contract would not be charged to the breaching party.

As discussed above, the first element of liquidated damages requires payment of 100 percent or 80 percent of future subscription fees. While a vendor will lose revenues from subscription fees if the agent breaches, it will also save some expenses, such as communications and processing costs.[26] It is not clear what proportion of subscription revenues would be offset by those savings. As to the second element, repayment of inducements, some vendors' liquidation clauses require repayment of all inducements. However it is possible that a court might determine that a vendor was entitled to recover only that portion of the incentives reflecting the time remaining on the contract at the time of the breach.

Recovery of damages for lost booking fees in a liquidated damages clause poses similar questions. Although by some measurements vendor booking fees greatly exceed their costs of making the bookings, the loss of bookings resulting from a subscriber's breach would nonetheless reduce expenses. A court may or may not find that particular clauses adequately accounted for such savings.

Although the large vendors have plausible arguments supporting their assertions that their liquidated damages clauses are valid and enforceable under contract law, there is no certainty that the clauses will ultimately be upheld. It is possible, for example, that some courts might refuse to enforce a liquidated damages clause based on concepts of overreaching or unconscionability. In some cases, a subscriber's liability for lost booking fees could substantially exceed direct payments for which the subscriber is responsible under the contract. In addition, some travel agency groups contend that subscribers have no bargaining power in their dealings with vendors and that the terms of subscription contracts are imposed upon them. Those two factors might persuade some courts to refuse to enforce the clauses. Finally, some defendants in the contract litigation have asserted competitive defenses.[27]

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[26] As discussed in Chapter V, vendors' direct subscriber costs exceed average subscriber fees by some measures.

[27] It should be noted, though, that all of these defenses were rejected in the Austin Travel case cited above.

E. Effects on CRS Competition

The intensity and nature of vendor competition for subscribers have evolved since the CRS rules were implemented. The SABRE, APOLLO, and PARS renewal programs discussed above were a response to an increase in conversion activity that coincided with the implementation of the CRS rule. The new booking fees and elimination of carrier-specific display bias that came as a result of the rule made participant booking fees, rather than anticipated incremental airline revenues, the primary CRS revenue source. This increased the vendors' incentives to automate agencies in areas where their air transportation presence (and the corresponding potential to earn incremental revenues) was small. The expectation of large booking fees also made vendors more willing to reimburse converted agents for their liquidated damages payments to the original vendor.[28]

For the first year after the CRS rule went into effect, SABRE and APOLLO appear to have been more active than the other vendors in converting agents from other systems, as well as persuading their existing subscribers to sign renewal contracts containing revised liquidated damages and other clauses.[29] The smaller vendors, particularly SYSTEMONE and PARS, have become much more aggressive in seeking to convert other vendors' subscribers in 1986 and 1987.[30]

Although incremental revenues may be less important than before, the battles being waged by vendors for the loyalty of subscribers appear to be particularly intense in areas of strategic importance to the vendors' airline operations. Thus, for example, internal documents show that SYSTEMONE has focused attention on signing subscribers in Florida, an area of strategic importance to Eastern. Similarly, PARS' co-owner, Northwest Airlines, has promoted that system in the areas around its major traffic hubs. SABRE and APOLLO have aggressively sought to expand their presence in California at the same time their parent airlines have sought to increase their presence there.

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[28] For example, the primary element of damages under the liquidated damages clauses in place in late 1984 and early 1985 was remaining subscription payments. As set forth in Table 5.5, SABRE and APOLLO received respective averages of $2,144 and $2,725 per CRT in subscriber payments in 1986, and presumably received a similar amount in the early post-rule period. By comparison, at a rate of $1.75 per booking, SABRE expected to earn annual booking fee revenues of at least $4,200 per CRT (SABRE's current liquidated damages clause estimates an average of 200 bookings per CRT per month). Thus, the potential booking fee benefits from converting an agent more than justified some reimbursement to the agent for its liability for remaining subscription payments to its original vendor.

[29] SABRE converted 328 agencies in 1985 and 259 agencies in 1986. United reports 402 conversions to APOLLO in 1985 and 290 conversions in 1986. Responses to Information Directive, Item 33(a).

[30] TWA reports 121 conversions to PARS in 1986, up from 55 in 1985. SYSTEMONE's reported conversions increased from 115 agencies in 1985 to 340 agencies in 1986. DATAS II's conversions decreased from approximately 105 agencies in 1985 to 87 agencies in 1986.

The competition for subscribers has resulted in a substantial amount of litigation. For example, the Texas Air Corporation recently reported that United and American were parties to 72 pending lawsuits in which they sought to enforce liquidated damages provisions against former subscribers. Liquidated damages payments from present or former APOLLO subscribers increased from $244,680 in 1984, to $422,101 in 1985, to $904,765 in 1986.[31] SYSTEMONE and other affiliates of the Texas Air Corporation have adopted a policy of indemnifying some agents who switch from other systems against liability under liquidated damages clauses. They have also assisted those agents in challenging the legality of such clauses in court. American has responded by suing SYSTEMONE and its affiliates in Texas state court on a claim of tortuous interference with contract.[32] Texas Air has countered with an antitrust complaint filed against American in U.S. District Court in Houston. It also recently filed a similar complaint against United and Covia.[33]

By the time SYSTEMONE and PARS began seeking subscribers with more vigor, most of the SABRE and APOLLO subscribers had signed new contracts with revised liquidated damages clauses. As a matter of logic, these contract renewal programs should have had the effect of making it more difficult for other vendors to convert subscribers.[34] The liability of subscribers for coverage of the original vendor's booking fee profits necessarily reduces the universe of automated agencies that would be logical targets for conversion efforts. Those agencies with relatively brief terms remaining on their contracts or those that are strategically important for the vendor's airline business would be the most logical conversion candidates. The contract renewal programs reduced the pool of likely conversion targets by starting new, five-year contract terms for a large number of agents.

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[31] Response to Information Directive, Item 30.

[32] American Airlines, Inc. v. Continental Airlines, Inc. et al., No. 153-108286-87, Tarrant County, Texas District Court, 153rd Judicial District.

[33] SYSTEMONE Direct Access, Inc. v. American Airlines, Inc. C.A. No. H-87-3730 (S.D. TX); SYSTEMONE Direct Access Inc. v. United Air Lines, Inc. C.A. No. H-88-550 (S.D. TX).

[34] Any question about whether the current contracts restrict conversion efforts would be disposed of if American succeeded in its lawsuit against the Texas Air Corporation for tortious interference with contract. A victory by American would presumably mean that vendors could not even attempt to convert SABRE agents prior to the expiration of their full contract terms, regardless of costs.

The booking fee element in these clauses increases the disincentives for agents and smaller vendors to convert.[35] A vendor who sought to convert an agent whose current contract had a substantial term remaining would likely have to reimburse or indemnify the agent for a significant portion of the agent's damage liability to the original vendor. If the liability includes coverage of the original vendor's future booking fee and subscription fee profits, the second vendor's reimbursement to the subscriber would nullify much of the subscriber and participant revenue that could be expected from the converted agent. This would be true unless the converted agent could be expected to engage in substantially more booking activity or otherwise generate more CRS revenue after conversion, or the new vendor could sign the agent to a term longer than that remaining on its current contract. However, the cost of converting the agent might be justified if the new vendor includes in its calculation any increase in air transportation revenues that could be expected to follow the conversion.[36] The greatest potential for such revenue increases is, naturally, in areas and with agencies where the vendor already has a large air transportation presence. As a result, vendors may again have greater tendencies to target agencies in areas where they have a dominant air transportation presence and, more generally, to view CRS as one element of airline distribution strategy rather than as a separate line of business.

Consistent with such a development, vendors have accused each other of tying the payment of airline commissions to subscribers' use of their system. All vendors sometimes offer airline-related inducements, such as free tickets or frequent flyer benefits, to agents they wish to convert. Each also occasionally offers its CRS in conjunction with broader offers to create a "closer working relationship" with a given travel agency. For example, the vendor might offer to enroll the agency in a special incentive program, to provide the agency with access to special "help desks," and/or to allow the agency special authority to book capacity-controlled seats and fares. Such offers might accompany an offer to convert the agency from another vendor's system. If the vendor does not make commission offers conditional on CRS conversion, the prohibition against tying contained in the CRS rule may not be violated. Differentiating permissible inducements from prohibited ties is difficult at best. In some circumstances, vendors may engage in conversion tactics that violate, or come close to violating, the prohibition, although available data on override arrangements do not indicate a wide-spread pattern of abuse.

Table 6.1 presents information for 1986 on the number of subscribers who receive override commissions from each of the five vendor airlines. Also shown are the average airline domestic ticket revenues from each system's subscribers and from those subscribers that receive override commissions.

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[35] Or, even in the absence of a contract clause, the potential liability of an agent who switches systems for damages based on booking fees.

[36] In fact, the three smaller vendors do include such revenues in their calculations when deciding whether the anticipated benefits from converting a particular agent is worth the cost.

TABLE 6.1

ASSOCIATION BETWEEN OVERRIDE COMMISSIONS AND CRS SUBSCRIPTIONS

	NUMBER OF AGENCY LOCATIONS IN 1986 BY OVERRIDE PAYER							AVERAGE SALES ($000)	
Vendor	American	United	Eastern	Delta	TWA	Override Recipients	All Subscribers	Subscribers Receiving Overrides	All Subscribers
American									
Primary:	2,277	2,522	1,987	1,975	1,497	4,438	8,677	$1,581	$1,063
Secondary:	143	214	170	169	151	289	350		
United									
Primary:	739	4,190	1,666	1,556	1,302	4,561	6,511	1,331	1,072
Secondary:	124	196	128	140	136	232	264		
Eastern									
Primary:	84	650	1,221	254	140	1,728	4,271	674	487
Secondary:	170	214	271	229	142	342	400		
Delta									
Primary:	28	360	182	318	69	685	2,045	782	513
Secondary:	163	131	178	230	111	263	292		
TWA									
Primary:	216	796	547	380	678	1,322	3,189	1,060	677
Secondary:	209	309	230	221	217	404	548		
All Systems:	3,344	8,518	5,603	4,483	3,686	12,734	24,693	$1,272	$870

Source: Information Directive, Item 27. Sales: Airlines Reporting Corporation, Agency/Airline year Sales Tape - 445.

Larger agencies are the preferred targets of all vendor airlines' override programs. The airline passenger ticket sales generated by each system's primary subscribers that receive override commissions are greater than the average for that vendor's subscribers. Moreover, the airline ticket sales generated by SABRE and APOLLO subscribers are greater than what is generated from other systems' subscribers.

Not only are primary subscribers to SABRE and APOLLO the predominant recipients of override commissions from American and United (together accounting for roughly 90 percent of American's override recipients and 79 percent of United's), but they also include 65 percent of Eastern's override recipients, 79 percent of Delta's, and 76 percent of TWA's, which may be due to the fact that SABRE and APOLLO subscribers tend to be larger agencies. Moreover, none of the three smaller vendors pays override commissions to as many of its own subscribers as it does to SABRE or APOLLO subscribers.

Beside the courtship of large travel agencies by the vendor airlines, American and United favor their own primary subscribers: American pays overrides to 2,277 primary subscribers to SABRE but only 739 APOLLO subscribers; United pays override commissions to 4,190 APOLLO subscribers, but 2,522 SABRE subscribers. However, United paid override commissions to 4,328 primary subscribers of other CRSs. Among subscribers to the three smaller systems, the pattern is less clear-cut.

Competition for subscribers has not, by any means, been foreclosed. The number of subscribers and the amount of air transport revenues processed through CRSs has increased markedly since 1983.[37] Along with that development, there has been some movement in the vendors' national market shares. SABRE's share of domestic air transport revenues processed by automated travel agencies decreased from 49 percent to 42.9 percent between 1983 and 1986; APOLLO's share increased from 31 percent to 32.4 percent; PARS' share decreased from 12 percent to 10.2 percent; SYSTEMONE's share increased from five percent to 96 percent; and DATAS II's share increased from two percent to 4.9 percent. Also, in some metropolitan areas, market shares have changed markedly as shown in Appendix IV and Tables 5.11 and 5.12. Vendors' conversion efforts have been quite visible. Table 3.11 shows that 1,107 subscribers, out of a total of 24,693, are reported as having switched systems in 1986. By comparison, over 2,900 subscribers were brought in as newly automated agencies and more than 8,000 existing subscribers renewed their contracts with their then-current vendors. A four percent conversion rate might appear somewhat low given the apparent vigor of vendors' recruitment efforts and in comparison to a renewal rate of 30 percent. However, this seemingly low level of conversion activity could be caused by a number of factors, such as subscribers' satisfaction with their current systems, or reluctance to incur the cost and disruption of switching systems. Finally, representatives of SABRE and APOLLO have stated informally that average subscriber revenues, as well as their market shares, have decreased recently as a result of this competition.

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[37] Compare Table 3.1 with NPRM, Tables 1 and 2.

Before one concludes that the use of the new contracts, or any specific provision in them, is an unfair competitive practice, several questions should be resolved. First, all contracts restrict competition to some degree, since they contemplate that the parties will do business with one another rather than with other buyers or sellers. Contractual commitments also increase certainty and reduce risk. The question here is whether the benefits of these contracts (or particular provisions) are outweighed by a purpose or effect that unreasonably restrains competition.

Second, if existing subscriber contracts do unreasonably restrain competition, the real culprit may not be their liquidated damages provisions. The current CRS rules permit contracts with terms as long as five years; they do not prohibit vendors from relying on profits from booking fees to cover losses from below-cost subscriber fees. If the liquidated damages clauses are enforceable under contract law, they reasonably reflect the actual contract damages the vendor will suffer from a breach, and are simply a natural consequence of permissible contract terms. Moreover, vendors would be able to recover such damages even in the absence of a clause.

Thus, if the existing contracts restrict competition unduly, the real cause might be the length of the contracts or provisions like the minimum use clauses that justify, from a contractual perspective, vendor reliance on profits from booking fees. Another contractual barrier to competition is vendor control over the use of connecting equipment, a practice that may deny subscribers the economies of accessing different CRSs via common terminals.

One final caveat is in order. The primary basis for concern and involvement in the CRS issue stems from its impact on airline competition. It is unclear whether or how action to alleviate restrictions on competition for subscribers can be expected to have a substantial beneficial effect on booking fees, since competition among subscribers for subscribers does not seem to have had any effect on such fees. In fact, the booking fees charged by the smaller vendors increased at the same time they began to compete more aggressively for subscribers. (This may be due in part to the need for smaller vendors to generate enough revenue to indemnify converted agents for any liquidated damages they may have to pay.) Moreover, it is not implausible that greater freedom for agents to switch systems would result in intensified bidding for their subscriptions by CRS vendors, accompanied by lower subscription fees and higher booking fees. With respect to competition among airlines that are also vendors, freeing up subscriber contracts would clearly have an impact on their ability to seek subscribers and halo revenues. (We have no data to indicate such a trend.)

However, the potential effects of a more competitive marketplace for subscribing agents are uncertain. The airline benefits derived from the halo effect confer upon vendor carriers an incentive to convert agents in markets where a vendor has a significant airline presence, and that airline presence could in turn facilitate a vendor's ability to attract new agents in those markets. We do not have any data at the present time to suggest an increased convergence of airline market shares and vendor market share as the result of CRS vendor competition for new agents since the adoption of the CRS rules. It may be that other factors mitigate against the development of such a trend. Nevertheless, if the correspondence between air transport market share and CRS vendor market share were to increase in regional markets, there might be cause for concern. Given the ability of the halo effect to confer competitive benefits upon a host airline, such a trend could increase whatever barriers there are to airline entry in those markets.

VII. EMERGING TECHNOLOGICAL DEVELOPMENTS IN THE CRS INDUSTRY

A. Introduction

The development of CRSs during the late 1960s and early 1970s required not only technological expertise but also substantial financial resources. By the early 1980s, there was a pronounced gap in technological sophistication and performance between the two largest CRSs -- SABRE and APOLLO -- and the smaller systems. More recently, however, the smaller vendors have narrowed this "technology gap" and all five vendors are now offering subscribers comparable reservation features and enhancements.

The CRS vendors compete with each other in terms of the service features they offer subscribers. This competition produces benefits for subscribers and air travelers. SYSTEMONE, for instance, recently acquired a company that specializes in providing travel agents with computer software for accounting and other back-office functions. And both United and American are redesigning their CRSs around personal computers that have the capability to handle accounting, managerial, and other back-office functions.[1]

Computer technology is enhancing the capability of existing CRSs and creating the potential to rearrange the economic relationships that now prevail among vendors, agents, and air carriers. Technology now exists that will permit customers to research airline schedules, seat availability and fares, make reservations, and pay for tickets, all without a travel agent's (or other human) involvement. Nevertheless, formidable institutional barriers, resistance to unfamiliar systems, and other constraints have prevented the diffusion of this technology.

This chapter examines those technological developments that will affect the structure of the CRS industry over the next five to ten years. Three major technological developments are discussed -- interactive automated ticket machines, personal computers, and commercial information networks. The final section presents conclusions.

B. Interactive Automated Ticket Machines

An interactive automated ticket machine (ATM) consists of a computer with attached printer that permits passengers to research schedules and fares, make reservations, and purchase and receive tickets and boarding passes without the intercession of a human agent. The early ATMs were essentially

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[1] "A Shoving Match in the Travel Agency," Business Week, June 22, 1987, 116.

ticket printers (not attached to the airlines' host computers) and were designed to issue one-way tickets on routes with simple fare structures. In 1983 a second generation of ATMs became available. These machines offer a CRT screen, keyboard selection of options, credit-card reader for payment, and an attached printer for issuing tickets and boarding passes. These newer machines are usually linked directly to the host's airline computer. The only transactions that these machines cannot process are complex itineraries or journeys of more than eight flight segments. A common criticism of ATMs is the length of time required to conduct a transaction. However, the time it takes to use an ATM is approximately the same as that required when a traveler uses the services of a travel agent.[2] Although earlier models were unpopular with travelers, newer installations, such as American's "Travel Teller," allow a "quick path" to bypass the menu and obtain a boarding pass. Travelers may also use such terminals to enter data for frequent flyer programs.[3]

The ATM is still evolving. The addition of a high-resolution color monitor and video-disk player, combined with menu-driven software and touch-screen control, offers the capability to display films or pictures to potential clients as well as to provide the standard information, booking, and sales features available on earlier machines.

American Airlines, for example, is testing a new system, SABREVISION, that will interface eventually with SABRE. American foresees these machines being located in travel agencies and at neutral locations, such as shopping malls. Eight of these units were being tested as of March 1987. Delta Air Lines' DELTASTAR will be offered as an enhancement to DATAS II. At least initially, DELTASTAR appears to be directed at self-service use by clients within travel agency offices. DELTASTAR will provide DATAS II users with a video sales component; it is not clear whether a stand-alone capability is intended for this machine.[4]

Liberty Travel (New Jersey) has announced its intention to install touch-screen video systems equipped with magnetic strip (credit card) reader and printer in stand-alone travel kiosks in Liberty offices and at neutral locations.[5] These interactive machines will permit the customer to book and purchase tickets by credit card without the intervention of a travel counselor. The touch-screen-activated system will provide video presentations describing destination options and selected locations. Initially, the agent will deliver the travel documents to the customer.

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[2] "Self-Service Machines," OAG Frequent Flyer, September 1987, 40-41. Airlines compete vigorously for the patronage of the "walk on" business traveler. Some airlines are actively encouraging business travelers to use ATMs.

[3] "Executive Travel File," OAG Frequent Flyer, December 1987, 84.

[4] "Video Sales Come of Age," Travel Weekly, March 23, 1987, 55.

[5] Ibid.

More advanced versions of these video systems will have the capability to print the travel documents immediately.

A remote printer is a device that can be used to produce documents such as tickets or boarding passes at remote locations upon command from a central computer. When combined with an ATM, a remote printer is able to display, reserve, sell, and deliver travel documents. Remote printers are now being used to print tickets and boarding passes at locations such as corporate travel offices, where the installation of a complete CRS terminal would be uneconomical.

The primary application of the ATMs to date has been in the sale of tickets by airlines at airports or city ticket offices. Initially introduced to sell one-way tickets in high-volume, shuttle-type markets, the capability of these machines has outstripped their use by airlines. In a recent article, a representative of NCR Inc. indicated that no airline promotes the use of ATMs. Presumably, the airlines fail to market this technology because it would compete with travel agents, upon whom they depend to book the overwhelming majority of their tickets, and because certain travel agency organizations have threatened to boycott any airline that relies on self-ticketing machines. At present only a few hundred self-ticketing machines are being operated in the United States.[6]

C. Personal Computers

Personal computers (PCs) are having the greatest impact upon existing CRSs, as they offer many advantages over the standard "dumb terminal," which the industry currently uses. (The dumb terminal provides a keyboard and a CRT for communicating with a vendors' main computer.) The CRS vendors are now offering PCs to travel agents as an upgrade for dumb terminals.

American recently unveiled a new CRS work station built on IBM's Personal System/2, while Delta has developed a PC LAN-based DELTASTAR reservation and agent automation system.[7] Both of these PC-based systems provide agents with the capability to store information about customer preferences (e.g., seating, meals, aircraft type) and corporate travel policies (e.g., class of travel or preferred airline) and to use this information to modify schedule displays. These preferences and guidelines can be automatically integrated into any booking request by programming the computer either to reject requests that fall outside these guidelines or to identify non-complying requests.[8] A similar capability is available to a travel agency manager who can monitor and control the flight information agents are able to view on their terminals. Just as a client's preferences can be automatically superimposed upon the information and booking process, so can the travel agency manager's. Personal computers may also be used as stand-alone computers to provide back-office support functions for subscribers and management information services for clients.[9]

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[6] "Self-Service Machines," OAG Frequent Flyer, September 1987, 40.

[7] "American Debuts New SABRE Hardware," Business Travel News, September 21, 1987, 1.

[8] "Delta Takes Off with Revamped LAN-Based Reservation System," PC Week, August 4, 1987, C-1.

The CRS vendors are also introducing user-friendly, simplified, menu-driven PC versions of their CRSs. The simplified computer languages used by these systems allow non-professional users to make transactions without requiring an agent to interpret the data (e.g., translate airline codes). Although such systems could be used by air travelers to bypass travel agents, the vendors plan to link these systems to agents by sending clients' requests into a queue in the agent's reservation terminal. Travel agents are, of course, less than enthusiastic about the prospect of an emerging technology that could replicate many of the services they now provide to travelers. To allay these fears, the CRS vendors have indicated they do not intend to use this capability to bypass agents.[10]

An important, if currently untapped, opportunity for PC application to the CRS environment is presented by the feasibility of connecting multiple CRSs to one PC. The computing capability of the PC could then be used to search among CRS systems for the service and fares that most closely meet the passengers' travel requirements. This practice is now prevented by licensing requirements that preclude multiple hookups.[11]

D. Commercial Information Networks

A commercial information network (CIN) allows subscribers to connect their PCs to both mainframe computers and other PCs. Thus, the user has access to multiple data bases and more computer software. Although the greatest growth of CINs has come with the spread of PCs, CINs have existed since modems provided the dial-up capability to link computers to terminals.

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[9] "CRS Vendors Target Travel Agents," Air Transport World, August 1986, 40.

[10] "Res Vendors to Unveil Systems for Commercial Use," Travel Weekly, September 22, 1986, 106.

[11] The ability to access last seat availability and to book that seat is not uniform for each airline across CRSs. Also, the number of "special fares" a participating airline can display is more limited than the vendor airline's display. The ability to attach multiple hookups to single personal computers with the resulting capability to search across systems automatically would make the different CRSs truly substitutable. Of course, competition among simultaneously connected CRSs would require more than the licensing of connections: minimum-use requirements and five-year terms of contract may impede competition among vendors for agencies. Also, in view of the rapid expansion of direct access, there may be little reason to expect higher quality service from multiple CRS access.

In May 1983 the electronic OAG was instituted as an on-line version of the printed OAG.[12] This service provides schedule and fare information and, as of mid-1986, a capability to book reservations and issue tickets. The electronic OAG is available through approximately 20 CINs, as well as through direct subscription. A unique feature of the electronic OAG is its provision for direct mailing or airport pickup of tickets, thereby bypassing a travel agent (although American and TWA tickets must be obtained through a Thomas Cook office).[13] The electronic OAG uses APOLLO for the actual automated link between its own computers and the internal reservation computers operated by participating airlines.

The American EASYSABRE and TWA TRAVELSHOPPER systems are similar to the electronic OAG. During the transaction, a list of agents is displayed on the system and the client may choose one. By making the agents an integral part of the process (and paying them commissions), the CRS vendors have attempted to overcome agents' opposition to automated systems. Representatives of each system claim that the use of its system is satisfactory and growing gradually.[14] Nevertheless, incentives for growth would undoubtedly by greater if commissions were rebated to home users.

These three principal vendors -- EASYSABRE, TRAVELSHOPPER, and the electronic OAG -- use CINs to provide widespread access to their "do-it-yourself" travel reservation systems. The three systems are all available as a service on most CINs.[15] Because of the only occasional access requirements of the individual user, the expense of a "hardwired" communications link connecting the user's terminal (usually a PC located in the user's home or office) to the central CRS computer would generally be impractical. (One of the three systems, the electronic OAG, provides direct subscriber access for a monthly fee and a charge per activity.)

E. Outlook and Conclusions

The technology now exists for major changes in the way travelers review airline schedules and fares, make reservations, and obtain travel documents. But, as with all innovation, more is required than the availability of new technology. The marketing innovation with the greatest potential for changing the way travelers obtain flight information and make travel arrangements -- automated ticket machines -- is not being promoted by either the CRS vendors or the airlines. With its potential for bypassing the travel agent's involvement in the reservations and ticketing process, automatic ticketing has been opposed by travel agents. Air carriers have been unwilling to promote this technology and risk alienating agents; consequently, the number of ATMs in operation has remained small. Thus, until airlines decide that it is a good business decision to bypass travel agents and offer discounts to customers for air travel purchased through an ATM, these systems will not become a major force in the sale of air travel.

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[12] "Passengers Take Command with On-Line OAG," PC World, December 1986, 307.

[13] Telephone conversation with Richard Nelson, General Manager, OAG, August 4, 1987.

[14] "Home Computer Res Systems Get Mixed Agent, Client Reception," Travel Weekly, August 25, 1986, 17.

[15] Telephone conversation with Richard Nelson, General Manager, OAG, August 4, 1987.

The sharing of commission revenues between corporations and agencies has become an accepted practice. It is unclear, however, whether the sharing of commissions is because of shared costs (e.g., the corporate travel office issues the ticket), leaving the agent with undiminished average profits, or an essential part of the overall "package" of incentives necessary to obtain the corporate account, which could reduce agency profits.[16]

The use of PC-based reservation systems is revolutionizing the amount of information travel agents can store and utilize. Personal computers also provide agents with enhanced back-office automation and expedite the production of billings and other financial documents. The PC allows the agent to provide a higher level of service. In the vast majority of transactions, though, the agent still provides the traveler with important flight-related information, as well as selling the ticket and issuing travel documents. Personal computers, therefore, may enhance the attractiveness of existing CRSs.

Simultaneous PC interface with several CRSs, which would allow automatic switching across the various systems from one terminal, is technologically feasible. If switching among systems were permitted (including the use of hardware and software designed to implement such applications), a strong incentive would exist for the vendors to compete on the basis of the service features they offer and the cost of their services to the agent, including payments to agencies to promote the use of a system for booking. At the same time, airlines might provide agents with a financial incentive to book reservations on their airlines using the CRS that charged the lowest booking fee.

To attach "foreign" equipment to a vendor's equipment, subscribers must receive that vendor's permission. In fact, SYSTEMONE and DATAS II do not allow a subscriber to attach any equipment that they have not provided. SABRE, APOLLO, and PARS allow some equipment to be attached to their systems. In a sample price list, American Airlines indicated that it would charge $750 to "certify" a printer, $1,000 to certify an "intelligent" terminal, and $1,500 to certify a mainframe computer. Additional fees are also charged for installing this equipment. These fees appear to be quite high, and very few agencies have obtained permission for such attachments.[17]

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[16] "Managers, Agents: Commission Sharing Not Bad," Travel Weekly, November 9, 1987, 85.

Representatives of the CINs claim that the level of usage is satisfactory and growing gradually. But until modem-equipped PCs become more widely distributed and utilized by households and businesses, the potential of these systems is unlikely to be exploited. Technology exists to permit automation of reservation and ticketing services to the general public and commercial clients. Nevertheless, it does not seem likely that any of the technological developments and applications discussed in this chapter will have a dramatic effect on the structure of the CRS industry over the next two to five years. Any CRS vendor willing and able to overcome the opposition of travel agents could readily implement such automation while offering passengers a partial rebate of the resulting cost savings. With appropriate economic conditions it appears likely -- although far from certain -- that at least some of these technologies will change the roles played by airline-owned CRSs or travel agents themselves in the sale and distribution of airline services over the next five to ten years.

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[17] Res Systems Roundup Tells Tale of Numbers," Travel Weekly, May 25, 1987, 125.

APPENDIX I

RULES GOVERNING AIRLINE-OWNED COMPUTER RESERVATION SYSTEMS

Display of Information

All systems shall provide a primary display or primary displays that include the schedules, fares, rules, and availability of all carriers in accordance with the provisions of this section. Primary displays shall be at least as useful for subscribers, in terms of functions or enhancements offered, and the ease with which such functions or enhancements can be performed or implemented, as any other displays maintained by the system vendor.

In ordering the information contained in a primary display, system vendors shall not use any factors directly or indirectly relating to carrier identity.

System vendors may order the display of information on the basis of any service criteria that do not reflect carrier identity and that are consistently applied to all carriers, including the system vendor, and to all markets.

System vendors shall provide upon request to all subscribers and participating carriers the current criteria used in ordering flights for the primary displays and the weight given to each criterion.

System vendors shall not use any factors directly or indirectly relating to carrier identity in constructing the primary displays of connecting flights.

System vendors may select the connecting points to be used in the construction of connecting flights for each city pair on the basis of any service criteria that do not reflect carrier identity and that are applied consistently to all carriers, including the system vendor, and to all markets.

System vendors may select connecting flights for inclusion ("edit") on the basis of service criteria that do not reflect carrier identity and that are applied consistently to all carriers, including the system vendor.

System vendors shall provide upon request to all subscribers and participating carriers current information on:

- all connecting points used for each market;
- all criteria used to select connecting points;
- all criteria used to "edit" connecting flights; and
- the weight given to each criterion in 1 and 2 above.

If system vendors select connecting points for use in constructing connecting flights, they shall use at least nine points for each city-pair, except that vendors may select fewer than nine such correcting points for a city-pair where:

- fewer than nine connecting points meet the service criteria;
- the vendor has used all the points that meet those criteria, along with all additional connecting points requested by participating carriers.

Upon receipt of information from any carrier, system vendors shall apply the same standards of care and timeliness to loading information concerning participating carriers as it applies to the loading of its own information.

If a system vendor provides special loading capability to any other carrier, it shall offer the same capability to all participating carriers in a non-discriminatory fashion as soon as technically feasible.

Each system vendor shall provide upon request to all participating carriers all current data base update procedures and data formats.

Display of Information

A system vendor shall not deny access to its system to two or more carriers whose flights share a single designator code, absent a determination by the Department of Transportation that the use of the code constitutes a violation of 49 U.S.C. 1381.

A system vendor shall not discriminate against any carrier on the basis of that carrier's using the same designator code as another carrier, either by display bias, or any other means relating to providing the system.

Contracts with Participating Carriers

No system vendor shall discriminate among participating carriers in the fees for participation in its system, or for system-related services. Differing fees to participating carriers for the same or similar levels of service shall be presumed to be discriminatory.

No system vendor shall condition participation in its system on the purchase or sale of any other goods or services.

System vendors shall provide upon request to carriers current information on their fee levels and fee arrangements with other participating carriers.

Contracts With Subscribers

No subscriber contract shall have a term in excess of five years.

No system vendor shall directly or indirectly prohibit a subscriber from obtaining or using any other system.

No system vendor shall require use of its system by the subscriber in any sale of its air transportation services.

No system vendor shall require that a travel agent use its system as a condition for the receipt of any commission for the sale of its air transportation services.

No system vendor shall charge prices to subscribers conditioned in whole or in part on the identity of carriers whose flights are sold by the subscriber.

Service Enhancements

In the event that a system vendor offers a service enhancement to any participating carrier, it shall offer it to all participating carriers on non-discriminatory terms.

Marketing Information

Each system vendor shall make available to participating carriers on non-discriminatory terms all marketing, booking, and sales data that it elects to generate from its system. However, domestic data must only be provided to domestic participating carriers. International data can only be released with the permission of the participating carrier.

APPENDIX II

ALGORITHMS FOR CONSTRUCTING CRS SCHEDULE DISPLAYS

While there are subtle differences among the ranking criteria used by the vendors, the process of creating a schedule display can be divided into three stages: (1) the establishment of procedures by which flights are classified as eligible for display; (2) a method of selecting flights in response to a subscriber's entry of city pair, date, and time; and (3) a ranking algorithm, by which selected flights are ordered for display.

Under DOT's rules the ordering of displays must be done according to objective criteria. In addition, if requested by participants, the rules require vendors to construct connections over at least nine hubs. These provisions help ensure that CRS displays provide travelers with accurate information on competitive service offerings.

Each system maintains a list of city pairs available for display and of hubs over which connections may be constructed. Generally, origin-destination (O-D) city pairs include all city-pair markets having non-stop or direct service, plus many city pairs with only connecting service. These city pairs are identified by historic traffic patterns, frequency of subscriber inquiry, or specific requests from participating airlines; the number of city pairs vary among systems and over time, but are well in excess of 200,000. Subscribers can also create itineraries not stored in advance by specifying likely connect points.

Similar criteria are applied to identify potential connection points, with the addition of constraints on feasibility of connections and maximum flight time, circuity, number of segments, or number of carriers on a multi-segment flight. Although the availability of nine connection points is mandatory, SABRE, APOLLO, and SYSTEMONE will construct 30 single connection itineraries, PARS 25, and DATAS II 12.

All vendors consider a smaller number of double connections -- i.e., itineraries requiring two successive changes of plane. SABRE will include on request a maximum of two connect points for each O-D pair served by a participant; APOLLO allows each participant to request up to 1,500 O-D pairs on its routes, with one additional single and one double connect point for each; SYSTEMONE admits requests for up to two connect points for each city pair, one of which may be a double connection; PARS accepts requests for additional city pairs with a maximum of one single and one double connecting point on routes served by the participant; DATAS II accepts up to two (single or double) connecting routes per O-D pair for each carrier.

In response to a subscriber's request for flight availability between given cities at a certain date and time, each CRS assembles a number of eligible flights. APOLLO selects groups of 16 flights in chronological order of departure, starting two hours before the requested time; SABRE selects groups of 20 flights in order of displacement from the requested time, direct service being included before connecting; DATAS II selects all flights within a three-hours-earlier to three-hours-later band (six hours for international flights); PARS starts two hours before the requested time and proceeds forward at least three hours, filling a 140 item record of flight options; and SYSTEMONE backs up two hours and proceeds forward to the end of the day.

Once the set of candidate flights is assembled, it is ranked for display on the basis of several criteria. APOLLO picks the first eight flights (of the previous 16 selected) using the sum of elapsed flight time and displacement from the requested departure as a ranking factor; the first and second groups of eight flights are then each presented in order of the following service categories:

1. Non-stop and direct flights;
2. Single on-line (and code sharing) connections;
3. Single interline connections between related carriers that do not share codes;
4. Single unrelated interline connections;
5. Double on-line (and code sharing) connections;
6. Double related, non-code-sharing interline connections; and
7. Double unrelated interline connections.

Within each category, the ranking of the flight is by minutes of elapsed time plus displacement, except that no elapsed time is assigned to nonstop flights. When 16 flights have been displayed, another group of 16 is selected and ranked.

Instead of using a hierarchy of categories like APOLLO's, SABRE uses a weighting system, with flights ranked by penalty points. These points are assigned as follows:

1. Displacement: one point per minute
2. Stops (up to five): 60 points each
3. On-line connections: 60 points each
4. Interline connections: 90 points each
5. Inter-airport connections: 150 points each

The sorting method employed by DATAS II is like APOLLO's: different criteria are used for assigning flights to a display and for ordering the display. Ten flights are assigned to a screen on the basis of elapsed time, although flights are considered to have the same elapsed time if time differs by 40 minutes or less. Ties for elapsed time are broken by ranking according to displacement from requested time, with the earlier chosen if displacement is equal. Next, flights are arranged for display on the screen in a _Official Airline Guide_ format, i.e., first all nonstop and direct flights, then all connections, with each category arranged in chronological order of departure.

PARS uses a method intermediate between sorting by categories and ranking by point scores. Points are assigned as follows:

1. Elapsed time: minutes*
2. Displacement: minutes
3. On-line connection: 30
4. Interline connection: 120
5. Inter-airport connection: 90
6. Not desired origin or destination airport: 180
7. Not requested service class: 120

These points are used to rank flights for display within each of three primary categories: direct service, single connection, and double connection. However, at the subscriber's option, this hierarchy of categories may be overridden to provide a single, combined ranking by points alone.

SYSTEMONE is unique in giving no consideration at all to elapsed time or displacement from requested time. Instead, it lists flights in the following categorical order:

1. Nonstop services;
2. Direct services with one or more stops;
3. Two-nonstop-segment on-line connections;
4. Two-nonstop-segment interline connections;
5. Two-multistop-segment on-line connections;
6. Two-multistop-segment interline connections; and
7. Three-segment connections.

Within each category, flights are displayed in chronological order of departure, starting two hours before the requested time.

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*For nonstop flights, predicted minutes based on mileage are used in place of scheduled minutes.

APPENDIX III

ESTIMATION OF CRS BIAS AND HALO REVENUE

This Appendix describes the procedures used to estimate the contributions by CRSs to the airline passenger revenues and operating profits of their airline owners. The dollar magnitude of these estimates was reported in Tables 4.2 and 4.7, and included as one component of the cash flows generated by each CRS that were summarized in Tables 4.4 and 4.9. Tables 4.2 and 4.7 estimated the range of these systems' contribution to airline profits by assuming that varying percentages of CRS-generated incremental revenue were translated into increased airline profits. This Appendix describes how we estimated the incremental revenues generated by each CRS from information reported to DOT by its airline owner.

The Nature of Incremental Revenue

Incremental revenues consist of two separate components: display bias and the halo effect. Prior to November 1984, some CRSs ranked and displayed flights in response to a travel agent's inquiry according to a procedure that favored those operated by their airline owners (or other "host" airlines). This practice led travel agents to book some passengers who would otherwise have traveled by competing airlines to travel on flights operated by the owner of the CRS with which that agent was equipped. The incremental passenger revenues stemming from such display bias are assumed to have ended in late 1984, when the CAB issued rules prohibiting it.

In addition, the maintenance of good business relationships between vendors and their travel agent subscribers may induce some agents to book a larger fraction of passengers for travel on flights operated by their CRS owners than would otherwise be the case. If so, such a halo effect will contribute incremental passenger revenues to the vendor airlines. Such an effect is distinct from any increase in passenger bookings and airline revenues that is induced by the payment of bonus (often called override) commissions to travel agents by airlines. Such commissions can be paid to a travel agent by airlines other than the owner of the CRS system that agent utilizes, including airlines that do not themselves own a CRS.

CRS Activity Subject to Bias and the Halo Effect

The vendor-reported estimates of incremental revenues reviewed in this Appendix were derived from analyses of vendor airline passenger revenues sold by travel agents who subscribe to their respective CRSs. In order to make these estimates comparable among vendors, we have expressed each vendor's reported estimates of the magnitude of incremental revenues as a percent of revenues sold through its CRS. In adjusting vendors' reported estimates to express them on this basis, we have made no attempt to exclude revenues sold through CRSs to passengers whose choices among flights or airlines were not subject to the potential effects of display bias or halo.

Representatives of some vendor airlines have recently pointed out that some fraction of passenger ticket revenues sold by CRS-equipped travel agents represents tickets purchased at travel agencies by passengers who initially booked their reservations by contacting an airline directly. (As they have noted, this practice is not limited to passengers traveling on CRS-owning airlines.) These representatives argue that because this practice appears to be widespread, the fraction of a CRS-owning airlines' passenger revenues sold by subscribers to that system may overstate the value of passenger reservations booked by subscribers, and thus potentially subject to the influence of screen display bias (before November 1984) or a halo effect. Interestingly, none of the vendors' studies of incremental revenues estimated their value as a percent of the value of vendor airline passenger revenue initially booked through their CRS, the basis that some now argue has always been the correct measure of revenues potentially subject to display bias and a halo effect.

Some vendor airlines have been able to measure the value of passenger revenue that was initially booked through travel agents equipped with their CRSs, or to estimate what fraction of revenues sold through their CRSs were initially booked directly with representatives of their airlines. These estimates consistently suggest that 20 to 25 percent of revenue sold through their CRSs was booked with the airline. Those passengers apparently chose the airline on which they would travel without the involvement of a travel agent (unless, as seems likely, some contacted an agent prior to making their reservations directly with an airline representative), and were thus not subject to the effects of display bias or halo.

A number of factors are capable of further reducing the number and dollar value of passenger reservations booked by CRS-equipped travel agents that are potentially subject to these effects. Travelers' accumulation of benefits in frequent flyer programs offered by individual carriers, the selective availability of discount fares, or even a vendor airline's failure to offer service in markets or at times desired by specific travelers could reduce or even eliminate the susceptibility of their choices among flights to display bias or a halo effect. However, none of the vendor airlines have attempted to estimate whether or by how much these factors further reduced the number of travelers purchasing tickets through CRS-equipped travel agents whose choices among airlines were not subject to bias or halo effects.

It is important to note that, with one exception, none of these considerations affects our estimates of the value of incremental airline passenger revenues stemming from display bias and halo effects. (This exception is discussed in detail in the section entitled SABRE Incremental Revenue, which appears below.) As noted above, most of the vendors' internal studies of incremental revenues estimated them as a percent of total revenues for travel on their respective airlines sold by travel agents who subscribed to their CRSs. When internal studies expressed estimates of incremental revenues as dollar values or as proportions of some figure other than a vendor airline's revenues sold through its CRS, we have adjusted these estimates to express them as a percent of revenues sold through the CRS.

All vendors were asked to submit comparable information on the value of passenger bookings originally made directly with sales representatives of their airlines. However, there does not appear to be any reason to use these figures to revise our incremental revenue estimates for the vendor airlines (other than the adjustment of estimated American incremental revenues discussed below). Accordingly, we have made no other adjustments to their estimates of incremental revenue or to the measures we derive from their reported estimates. Nor is it evident that other partial corrections intended to refine the measure of passenger revenue that is subject to the influence of display bias or a halo effect, and thus to classification as incremental revenue, would improve the accuracy of the estimates previously reported in Tables 4.2 and 4.7.

Because we have consistently measured and expressed incremental revenues as a fraction of total vendor airline revenues sold by travel agents equipped with its CRS, our resulting estimates of the dollar value of incremental revenue in each year are consistent with those implied by vendors' internal studies. The dollar estimates of incremental revenues reported in Tables 4.2 and 4.7 are each derived by multiplying the fraction of total vendor airline revenues sold through its CRS that represents incremental revenues by the dollar value of total airline revenues sold through its CRS in each year.

APOLLO Incremental Revenue

United Airlines commissioned two major studies of the incremental revenues contributed by APOLLO, as well as a separate analysis of the contribution of its incentive commission program to airline revenues when the participant was an APOLLO-equipped travel agent. In 1983, Dr. William E. Wecker estimated that converting a SABRE-equipped travel agent to the use of United's APOLLO system resulted in a 13 percent average increase on the dollar volume of travel on United flights booked by that agent.[1] This study was based on an analysis of changes in actual booking patterns of 130 travel agents who had converted from American's SABRE system to APOLLO during 1982, adjusted to remove the effect of changes in their booking patterns that would have occurred if they had continued to evolve according to past trends. A subsequent internal analysis conducted by United concluded that placing an APOLLO-equipped travel agent on United's override program raised its dollar share of passenger bookings on United flights by an additional 11 percent.[2]

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[1] Dr. William E. Wecker, "The Amount of Additional Air Transportation Revenue United Receives Because of APOLLO," November 1983.

[2] "Special Sales Incentive Proposal," Study summarized in "Automation Impact on Agency Shares," December 1984, document supplied by United Airlines in response to USDOT Information Directive, Item 20, 005169.

In response to the CAB's CRS rules in late 1984, United conducted an extensive analysis of the comparative booking patterns of SABRE-equipped, non-automated, and APOLLO-equipped travel agents in 14 cities served heavily by United flights. (The study does not report the total number of agents included in the analysis.)[3] This study is by far the most comprehensive -- and, in our judgment, reliable -- of the studies conducted by United (and perhaps by any vendor), and we have relied on its findings to estimate the contribution of APOLLO to the passenger revenues and profitability of United Airlines. This study concluded that prior to the imposition of the CAB anti-bias rules, APOLLO-equipped travel agents who did not participate in any airline's override commission program booked 18 percent more United passenger revenues on average than comparable, non-automated travel agents.

Because this finding applied to the pre-rule period, we interpret the 18 percent figure as the sum of APOLLO display bias and halo effects prior to November 1984. The proper interpretation of this figure for use in estimating the fraction of total APOLLO revenue attributable to the combined bias and halo effects appears to be that APOLLO-equipped travel agents booked 118 percent of the United passenger revenue booked by non-automated travel agents, of which 18 percent was due to their use of APOLLO. Thus, 18 percent divided by 118 percent, or 15.3 percent, of total United-generated revenue apparently stemmed from combined bias and halo effects, according to United's analysis. This figure is used in Table 4.2 to estimate the incremental revenues generated by the APOLLO system for the years 1976 to 1983.

The same study concluded that after the CAB rules took effect, the additional United revenue booked by APOLLO-equipped agents using the unbiased primary APOLLO display and not receiving override commissions from any airline declined to 16 percent compared with their non-automated peers.[4] Because this difference did not reflect any effect of screen display bias, we conclude that the halo effect, by itself, must have been responsible for the full 16 percent, with screen display bias having accounted for the remaining two percentage points (18 percent minus 16 percent) during the pre-rule period. Applying the same "normalization" discussed above, United's analysis estimates that of its domestic passenger revenue sold through APOLLO during 1985 and 1986, 16 percent divided by 116 percent, or 13.8 percent, results from the halo effect. This figure appears in Table 4.2 for the years 1985 and 1986 and is also used in Table 4.7 to estimate APOLLO incremental revenue from the halo effect for the years 1987 to 1992. The 14.9 percent figure shown for 1984 in Table 4.2 represents the 13.8 percent halo effect contribution plus the bias effect (equal to 15.3 percent minus 13.8 percent, or 1.5 percent), with the latter prevailing only during the ten months of the year before the CAB's 1984 rules took effect.[5]

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[3] "Automation - Impact on Agency Shares," December 1984, Document supplied by United Airlines in response to USDOT Information Directive, Item 20, 005171-005199.

[4] The CAB rules governing CRSs originally allowed vendors to supply travel agents with a "secondary" display that could continue to be biased, but required that the "primary" display present unbiased flight rankings. This practice was ended during 1985.

SABRE Incremental Revenue

According to the documents submitted by American Airlines, that carrier conducted only one major analysis of the incremental revenues contributed by SABRE during 1983.[6] This analysis consisted of two parts: (1) an evaluation of incremental airline passenger revenue contributed to American by SABRE and (2) an estimate of the effect of preferential display of American flights on passenger bookings by SABRE-equipped agents. The SABRE incremental revenue analysis compared the booking patterns of SABRE-equipped agents, non-automated travel agencies, and users of various other CRSs. It concluded that during 1982, $268 million (or 23.7 percent) of the $1,129 million in American Airlines passenger revenue sold through SABRE resulted from the combined effect of screen display bias and the halo effect (i.e., 23.7 percent represented total incremental revenues). The 23.7 percent figure is used in Table 4.2 to estimate the incremental airline passenger revenue accruing to American during the period 1976 to 1988.

American employed an elaborate statistical analysis to estimate the fraction of bookings made by SABRE agents for travel on its flights that was attributable to their preferential display on SABRE screens. While only limited documentation of the procedure employed was provided by American, it appears to have entailed estimating the parameters of a statistical model of travelers' choices among the flight alternatives presented to them by SABRE-equipped agents, using a sample of several thousand such choices. In addition to the elapsed times, closeness with which their arrival or departure times matched travelers' requests, and other characteristics of the flight alternatives presented, the position of flights on the SABRE display was found to influence travelers' selection of flights. Using the resulting statistical estimate of the strength of this influence, the analysis concluded that the preferential display of American flights in SABRE accounted for 19.6 percent of the total value of passenger tickets booked for travel on American flights by SABRE subscribers.

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[5] The results for APOLLO appear to show that bias was a relatively minor source of incremental revenue compared to halo. This may be true; however, it does not necessarily mean that our estimate of APOLLO halo is too high. Our estimate is in line with those we derived for the other vendors, and well below that produced by our own regression analysis.

[6] "Marketing Automation Economics," August 1983, document supplied by American Airlines in response to USDOT Information Directive, Item 20, 20-0002 to 20-0023.

However, the same analysis also reported that only 57 percent of sales by SABRE-equipped agents resulted from passengers' selection of an American flight from the flight availability display presented to a SABRE agent (the only sales for which screen position could have affected choice of carrier); the remainder was presumably requested by travelers or otherwise selected without comparison to flight alternatives operated by competing carriers. Thus, the analysis concluded that only 19.6 percent of 57 percent, or 11.2 percent, of American bookings and made through SABRE was attributable to its preferential display of American flights.

As indicated above, however, the value of host airline passenger revenue booked through its CRS is smaller than that sold through the CRS, since some passenger tickets included in the latter figure were originally booked directly through the airline's sales representatives. Thus, the 11.2 percent figure overstates the amount of revenue sold by SABRE subscribers that was attributable to the screen display bias that existed prior to November 1984. Supplemental information recently provided by American Airlines indicates that during 1983, 32.0 percent of American Airlines' passenger revenue was initially booked through its CRSs, while 41.0 percent of that revenue was actually sold by SABRE-equipped agents.

Since American's domestic passenger revenue amounted to $3,603 million in 1983, the 32.0 percent figure implies that $1,153 million was initially booked through SABRE. Of this amount, American's analysis suggests that 11.2 percent, or $129 million, represented the product of bias in SABRE screen displays. Applying the 41.0 percent figure to this same total revenue suggests that $1,477 in American domestic passenger revenue was actually sold through SABRE during 1983. Thus, the $129 million of American Airlines' 1983 domestic passenger revenue that was apparently attributable to SABRE display bias represented 8.7 percent of the $1,477 in total American Airlines domestic passenger revenue actually sold through SABRE during 1983.

Thus, we conclude that the difference between American's estimate of the 23.7 percent of SABRE revenue that represented incremental airline revenue and the 8.7 percent that apparently stemmed from bias, or 15.0 percent, represented the halo effect created by American's favorable relations with its SABRE subscribers. Because the 1984 rules are assumed to have eliminated bias, the 15.0 percent figure appears in Table 4.2 as the percent of SABRE incremental revenue during 1985 and 1986, as well as in Table 4.7 for the period 1987 to 1992. The 1984 figure in Table 4.2 (21.0 percent) represents ten months of incremental revenue at the higher bias plus halo figure (23.7 percent), with the remaining two months of the year at the lower halo-only figure (15.0 percent).

PARS Incremental Revenue

TWA conducted various internal analyses of the incremental airline passenger revenues generated by PARS.[7] Several of these studies compared the growth in passenger revenue booked on TWA by PARS-equipped agents with that booked by agents equipped with other airlines' CRSs, both before and after those agents were automated. Separate comparisons were performed for travel agencies of different size, as well as for agencies that the airline judged to be "predisposed" to book passengers on TWA, because of their booking patterns before they were equipped with PARS. For example, one analysis concluded that during the 1979 to 1981 period, TWA revenue booked by PARS-equipped travel agents grew 16 percent relative to TWA revenue booked by SABRE agents and 10 percent relative to APOLLO agents. Previous analyses showed considerably larger differentials for earlier periods.

Unfortunately, it appears impossible to infer any measure of TWA incremental revenues owing to the PARS system from these differential growth rates. Even if it were possible to do so, any such estimates would represent the net effect of pro-TWA bias and halo effects on PARS agents' booking patterns and pro-host bias and halo effects on the booking behavior of agents equipped with competing CRSs. Further, other TWA internal studies arrived at widely differing estimates of the magnitude of incremental airline revenue resulting from PARS display bias (from 12 percent to as high as 53 percent). Thus, there appears to be no reliable way to construct an estimate of the magnitude of pre-rule incremental revenue generated by PARS from the various analyses conducted by TWA.

However, other data provided by TWA do allow a comparison of the fraction of airline ticket and revenue sales that represented travel on TWA flights between PARS agents and those equipped with other CRSs during the post-rule period. An analysis of these data indicates that, on average, the fraction of total airline revenue booked by PARS agents on flights operated by TWA is 4.9 percentage points higher than that booked on TWA flights by agents equipped with other CRSs. However, this difference probably represents the combined effect of the presumably favorable relationships maintained by each CRS-owning airline with its subscribers. If these relationships are equally influential for all CRS vendors, then approximately half of this 4.9 percentage point difference may owe to the halo effect created by relations between TWA and PARS-equipped travel agents. Since TWA bookings by these PARS subscribers on average represented 20.8 percent of their total air travel sales during the same period, this effect apparently accounts for 11.8 percent (one-half of 4.9 percent divided by 20.8 percent) of total TWA revenue booked by PARS agents. Because we have not been able to construct an estimate of the contribution of PARS bias to incremental revenue, the 11.8 percent figure has been used in Tables 4.2 and 4.7 to estimate the magnitude of PARS incremental revenues for periods before and after the CAB rule. This assumption may cause the estimates of PARS profitability reported in Table 4.10 to be too low, although for other reasons these figures may overstate its profitability.[8]

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[7] "Statistical Analysis of Agency Automation Efforts," February 1, 1979, May 1981, and May 1982, documents supplied by Trans World Airlines in response to USDOT Information Directive, Item 20, documents 20-21, 20-19, and 20-17.

DATAS II Incremental Revenue

Delta reported very limited information on the magnitude of incremental revenues generated by its DATAS II system. The only reported analysis of DATAS II incremental revenues compared changes between the third quarters of 1984 and 1985 on the fraction of total air transportation revenue booked on Delta flights by various groups of travel agents: 80 agencies that converted to DATAS II from other CRSs, 11 agencies that subscribed to DATAS II throughout the period, and nine agencies whose DATAS II contracts were canceled.[9] Probably because the study period coincided when the CAB issued its CRS rules, the study revealed several anomalies that made it unsuitable for use in estimating the incremental revenues generated from DATAS II.[10]

Neither this study nor any other documentation submitted by Delta suggests that systematic display bias existed in DATAS II even prior to the CAB rules, so any incremental revenue it generated must have stemmed from whatever halo effect was created by Delta's relations with DATAS II subscribers. The only estimate of its magnitude reported on Delta documents is that Delta passenger revenue increases approximately 10 percent as a

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[8] TWA submitted revenue, expense, and operating data for its PARS system only for the years 1980 to 1986, although other internal documents submitted suggest that commercial operation of PARS began during 1978. The effect of the presumably negative cash flows for PARS during 1978 and 1979, together with the resulting deferral of the earliest positive cash flows, would be to reduce its calculated economic rates of return under the assumptions used in to calculate Table 4.10. Because the comparative magnitudes of this possible omission and the exclusion of bias-generated incremental revenues from total PARS cash flows are impossible to evaluate a priori, it is difficult to judge whether the rates of return indicated for PARS in Table 4.10 are likely to overstate or understate its true profitability.

[9] "Halo Effect," internal memorandum dated January 8, 1986, document supplied by Delta Airlines in response to USDOT Information Directive, Item 20, document 20001.

[10] Most important, the 11 agencies subscribing to DATAS II throughout the study period showed a larger increase in the share of revenue booked on Delta than did those converted to DATAS II from other systems. In addition, even agencies whose DATAS II contracts were canceled showed a substantial increase in the percentage of revenue booked on Delta, no doubt partly because of the elimination of bias from othe other systems which they presumably began to use subsequently. Finally, an additional group of agencies converted to DATAS II in the quarter following the end of the study period showed a substantial decline in the percent of airline passengers booked on Delta flights.

result of the improved "rapport" established with DATAS II subscribers.[11] This estimate appears to be based on the finding that during the first half of 1985, the fraction of all passenger segments booked by DATAS II subscribers exceeded Delta's nationwide market share of passengers carried by approximately 10 percent. Because we lack a more reliable estimate to substitute for this figure, Tables 4.2 and 4.7 use the ten percent figure to estimate the contribution of DATAS II to Delta's airline passenger revenues (no bias revenue is included, as discussed above).

SYSTEMONE Incremental Revenue

In response to the Department's Information Directive, Eastern Air Lines provided a single study of changes in travel agent bookings on Eastern flights in six of its major air travel markets during the period 1983 to 1985.[12] This study contained two analyses, dated December 1984 and August 1985, which calculated year-to-year changes over the period 1983 to 1985 in revenue booked for travel on Eastern flights by existing SODA subscribers -- subscribers converted from another CRS to SODA during each of those years, new SODA subscribers that had not previously utilized a CRS, and subscribers to other systems. The study also reported the percent by which the increase in Eastern revenue for each of these three types of SODA subscribers exceeded that for subscribers to other CRSs for the United States in total, as well as for the six markets studied.

Analysis of the nationwide data reported in this study indicates that the proportion of passenger revenue booked on Eastern flights by experienced SODA subscribers exceeded that for new SODA subscribers over this period by 10.0 to 12.4 percent, with the lower figure representing the result for the most recent year studied. Expressed as a percent of the (higher) growth in bookings by experienced SODA agents, this difference ranged from 9.1 to 11.0 percent. Because this difference presumably reflects the effect of the development over time of a business relationship between Eastern and its new subscribers, we interpret it as a measure of the halo effect stemming from this relationship. (Table 4.2 employs the more recent 9.1 percent figure.)

We cannot, however, infer from the revenue growth figures reported in the study a reliable measure of whether SYSTEMONE display bias contributed to incremental revenues for Eastern. Although the difference in Eastern booking growth rates between long-term or newly converted SODA subscribers and travel agents equipped with other CRSs should provide some indication of its effect, this difference also reflects other influences. We are thus unable to develop a satisfactory measure of the independent effect of possible pro-Eastern bias on booking patterns of the system's subscribers.

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[11] "DATAS II - Three Year Review," internal memorandum dated July 30, 1985, document supplied by Delta Airlines in response to USDOT Information Directive, Item 20, document 20004.

[12] "Exhibit II: S.O.D.A. Revenues," document provided by Eastern Airlines in response to DOT Information Directive, Item 20, document 20-1, 00025-00063.

APPENDIX IV

MARKET SHARES OF CRS VENDORS
ANNUAL REVENUES -- (PRIMARY SYSTEMS)*
LARGE & MEDIUM HUB CITIES
1983 - 1986

CITY/ MSA	ST	CRS	JULY 1982 - JUNE 1983 ANNUAL REVENUE AMOUNT	JULY 1982 - JUNE 1983 ANNUAL REVENUE PERCENT		1986 ANNUAL REVENUE AMOUNT	1986 ANNUAL REVENUE PERCENT	PCT PT CHANGE MKT SHR	
LARGE HUBS:									
Atlanta	GA	Apollo (UA)	45,930,825	25.78%		135,234,642	27.20%	1.42	
0520		DatasII (DL)	6,402,140	3.59%		107,571,321	21.64%	18.04	
		Pars (TW)	5,827,758	3.27%	2-FIRM	56,949	0.01%	-3.26	2-FIRM
		Sabre (AA)	36,481,134	20.47%	69.59%	119,773,685	24.09%	3.62	54.26%
		Soda/SysI(EA)	78,060,102	43.81%		134,557,866	27.06%	-16.75	
		MarsPlus(TY)	5,476,547	3.07%		0	0.00%		
		Totals	178,178,506	100.00%		497,194,463	100.00%		
Boston	MA	Apollo (UA)	46,921,070	11.54%		101,428,861	13.89%	2.35	
07C		DatasII (DL)	3,728,859	0.92%		28,912,128	3.96%	3.04	
		Pars (TW)	39,293,006	9.66%	2-FIRM	79,953,739	10.95%	1.28	2-FIRM
		Sabre (AA)	305,998,405	75.24%	86.78%	447,870,709	61.32%	-13.92	75.20%
		Soda/SysI(EA)	10,760,443	2.65%		72,275,474	9.89%	7.25	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	406,701,783	100.00%		730,440,911	100.00%		
Charlotte	NC	Apollo (UA)	10,212,046	32.50%		23,571,950	26.26%	-6.24	
1520		DatasII (DL)	1,199,542	3.82%		3,685,900	4.11%	0.29	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	3,863,298	12.30%	74.66%	23,666,453	26.36%	14.07	69.63%
		Soda/SysI(EA)	13,245,473	42.16%		38,840,755	43.27%	1.11	
		MarsPlus(TY)	2,899,073	9.23%		0	0.00%		
		Totals	31,419,432	100.00%		89,765,058	100.00%		
Chicago	IL	Apollo (UA)	375,692,304	47.17%		627,115,717	50.52%	3.35	
14C		DatasII (DL)	17,403,396	2.19%		39,317,874	3.17%	0.98	
		Pars (TW)	27,099,425	3.40%	2-FIRM	34,113,833	2.75%	-0.65	2-FIRM
		Sabre (AA)	365,637,828	45.91%	93.08%	519,127,741	41.82%	-4.09	92.34%
		Soda/SysI(EA)	5,162,069	0.65%		21,700,561	1.75%	1.10	
		MarsPlus(TY)	5,430,707	0.68%		0	0.00%		
		Totals	796,425,729	100.00%		1,241,375,726	100.00%		
Dallas	TX	Apollo (UA)	2,770,024	0.73%		19,212,635	3.12%	2.40	
31C		DatasII (DL)	7,580,453	1.99%		26,913,721	4.38%	2.38	
		Pars (TW)	5,486,050	1.44%	2-FIRM	4,821,500	0.78%	-0.66	2-FIRM
		Sabre (AA)	360,952,638	94.93%	96.92%	562,460,616	91.46%	-3.47	95.84%
		Soda/SysI(EA)	0	0.00%		1,569,046	0.26%	0.26	
		MarsPlus(TY)	3,456,044	0.91%		0	0.00%		
		Totals	380,245,209	100.00%		614,977,518	100.00%		

CITY/			JULY 1982 - JUNE 1983			1986		PCT PT	
			ANNUAL REVENUE			ANNUAL REVENUE		CHANGE	
MSA	ST	CRS	AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Denver	CO	Apollo (UA)	233,964,453	76.12%		272,914,372	76.02%	-0.10	
34C		DatasII (DL)	4,679,011	1.52%		8,528,963	2.38%	0.85	
		Pars (TW)	9,097,378	2.96%	2-FIRM	9,454,844	2.63%	-0.33	2-FIRM
		Sabre (AA)	58,441,852	19.01%	95.13%	57,057,035	15.89%	-3.12	91.91%
		Soda/SysI(EA)	197,940	0.06%		11,048,847	3.08%	3.01	
		MarsPlus(TY)	993,828	0.32%		0	0.00%		
		Totals	307,374,462	100.00%		359,004,061	100.00%		
Detroit	MI	Apollo (UA)	110,233,797	37.06%		165,131,631	35.14%	-1.92	
35C		DatasII (DL)	6,113,266	2.06%		27,327,595	5.82%	3.76	
		Pars (TW)	4,135,646	1.39%	2-FIRM	10,942,640	2.33%	0.94	2-FIRM
		Sabre (AA)	172,279,837	57.93%	94.99%	254,391,866	54.14%	-3.79	89.29%
		Soda/SysI(EA)	1,329,576	0.45%		12,066,411	2.57%	2.12	
		MarsPlus(TY)	3,316,166	1.12%		0	0.00%		
		Totals	297,408,288	100.00%		469,860,143	100.00%		
Honolulu	HI	Apollo (UA)	58,371,776	56.41%		107,853,409	74.41%	18.00	
3320		DatasII (DL)	0	0.00%		0	0.00%	0.00	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	45,056,430	43.54%	99.95%	37,088,370	25.59%	-17.95	100.00%
		Soda/SysI(EA)	0	0.00%		0	0.00%	0.00	
		MarsPlus(TY)	52,454	0.05%		0	0.00%		
		Totals	103,480,660	100.00%		144,941,779	100.00%		
Houston	TX	Apollo (UA)	10,051,053	3.36%		71,735,373	18.39%	15.04	
42C		DatasII (DL)	8,500,661	2.84%		14,714,011	3.77%	0.93	
		Pars (TW)	3,563,635	1.19%	2-FIRM	9,331,331	2.39%	1.20	2-FIRM
		Sabre (AA)	260,130,559	86.86%	91.33%	224,125,817	57.46%	-29.40	75.85%
		Soda/SysI(EA)	13,386,585	4.47%		70,135,791	17.98%	13.51	
		MarsPlus(TY)	3,855,596	1.29%		0	0.00%		
		Totals	299,488,089	100.00%		390,042,323	100.00%		
Las Vegas	NV	Apollo (UA)	6,854,086	16.81%		11,231,874	18.53%	1.72	
4120		DatasII (DL)	104,766	0.26%		1,484,430	2.45%	2.19	
		Pars (TW)	20,604,754	50.55%	2-FIRM	24,956,808	41.17%	-9.38	2-FIRM
		Sabre (AA)	11,870,784	29.12%	79.67%	13,637,681	22.50%	-6.62	63.67%
		Soda/SysI(EA)	709,713	1.74%		9,304,048	15.35%	13.61	
		MarsPlus(TY)	618,322	1.52%		0	0.00%		
		Totals	40,762,425	100.00%		60,614,841	100.00%		
Los Angeles	CA	Apollo (UA)	424,007,192	33.42%		652,146,086	39.41%	5.98	
49C		DatasII (DL)	24,050,020	1.90%		56,714,979	3.43%	1.53	
		Pars (TW)	191,422,905	15.09%	2-FIRM	237,186,632	14.33%	-0.76	2-FIRM
		Sabre (AA)	607,080,303	47.86%	81.28%	680,936,388	41.15%	-6.71	80.56%
		Soda/SysI(EA)	4,857,378	0.38%		27,811,483	1.68%	1.30	
		MarsPlus(TY)	17,120,974	1.35%		0	0.00%		
		Totals	1,268,538,772	100.00%		1,654,795,568	100.00%		

CITY/			JULY 1982 - JUNE 1983			1986		PCT PT	
			ANNUAL REVENUE			ANNUAL REVENUE		CHANGE	
MSA	ST	CRS	AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Memphis	TN	Apollo (UA)	2,419,023	5.73%		16,218,213	16.60%	10.87	
4920		DatasII (DL)	900,244	2.13%		10,825,896	11.08%	8.95	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	38,892,140	92.14%	97.87%	70,603,046	72.26%	-19.88	88.85%
		Soda/SysI(EA)	0	0.00%		65,174	0.07%	0.07	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	42,211,407	100.00%		97,712,329	100.00%		
Miami	FL	Apollo (UA)	17,281,859	5.62%		24,147,905	5.25%	-0.37	
56C		DatasII (DL)	17,960,919	5.84%		28,528,338	6.20%	0.37	
		Pars (TW)	17,914,125	5.82%	2-FIRM	9,060,717	1.97%	-3.85	2-FIRM
		Sabre (AA)	188,947,160	61.39%	77.88%	192,069,758	41.76%	-19.63	86.58%
		Soda/SysI(EA)	50,753,367	16.49%		206,162,654	44.82%	28.33	
		MarsPlus(TY)	14,915,136	4.85%		0	0.00%		
		Totals	307,772,566	100.00%		459,969,372	100.00%		
Minneapolis	MN	Apollo (UA)	57,886,424	21.71%		87,499,115	19.09%	-2.62	
5120		DatasII (DL)	508,660	0.19%		6,996,738	1.53%	1.34	
		Pars (TW)	19,789,047	7.42%	2-FIRM	8,327,456	1.82%	-5.61	2-FIRM
		Sabre (AA)	138,889,317	52.09%	73.80%	307,568,535	67.10%	15.01	86.19%
		Soda/SysI(EA)	12,533,133	4.70%		47,956,145	10.46%	5.76	
		MarsPlus(TY)	37,022,853	13.89%		0	0.00%		
		Totals	266,629,434	100.00%		458,347,989	100.00%		
New York	NY	Apollo (UA)	241,251,534	16.12%		277,485,064	11.95%	-4.17	
70C		DatasII (DL)	20,912,457	1.40%		39,180,194	1.69%	0.29	
		Pars (TW)	232,942,693	15.56%	2-FIRM	313,528,150	13.50%	-2.06	2-FIRM
		Sabre (AA)	929,335,559	62.09%	78.20%	1,423,223,147	61.30%	-0.78	74.81%
		Soda/SysI(EA)	63,370,022	4.23%		268,215,965	11.55%	7.32	
		MarsPlus(TY)	9,033,688	0.60%		0	0.00%		
		Totals	1,496,845,953	100.00%		2,321,632,520	100.00%		
Orlando	FL	Apollo (UA)	5,077,731	9.69%		39,985,227	35.22%	25.53	
5960		DatasII (DL)	7,426,994	14.17%		26,028,389	22.92%	8.76	
		Pars (TW)	971,180	1.85%	2-FIRM	543,363	0.48%	-1.37	2-FIRM
		Sabre (AA)	16,065,528	30.64%	65.18%	22,864,149	20.14%	-10.51	58.14%
		Soda/SysI(EA)	18,108,520	34.54%		24,122,156	21.24%	-13.30	
		MarsPlus(TY)	4,776,732	9.11%		0	0.00%		
		Totals	52,426,685	100.00%		113,543,284	100.00%		
Philadelphia	PA	Apollo (UA)	143,246,152	43.23%		271,309,774	49.73%	6.50	
77C		DatasII (DL)	6,540,470	1.97%		8,478,312	1.55%	-0.42	
		Pars (TW)	85,732,070	25.87%	2-FIRM	115,702,593	21.21%	-4.66	2-FIRM
		Sabre (AA)	54,762,980	16.53%	69.10%	83,948,793	15.39%	-1.14	70.94%
		Soda/SysI(EA)	36,384,946	10.98%		66,105,786	12.12%	1.14	
		MarsPlus(TY)	4,692,752	1.42%		0	0.00%		
		Totals	331,359,370	100.00%		545,545,258	100.00%		

			JULY 1982 - JUNE 1983			1986		PCT PT	
CITY/			ANNUAL REVENUE			ANNUAL REVENUE		CHANGE	
MSA	ST	CRS	AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Phoenix	AZ	Apollo (UA)	17,871,534	9.37%		47,796,939	17.07%	7.70	
6200		DatasII (DL)	1,061,751	0.56%		6,938,257	2.48%	1.92	
		Pars (TW)	30,956,565	16.23%	2-FIRM	34,593,126	12.35%	-3.87	2-FIRM
		Sabre (AA)	136,708,208	71.65%	87.88%	180,028,348	64.29%	-7.37	81.36%
		Soda/SysI(EA)	3,615,574	1.90%		10,679,441	3.81%	1.92	
		MarsPlus(TY)	575,429	0.30%		0	0.00%		
		Totals	190,789,061	100.00%		280,036,111	100.00%		
Pittsburgh	PA	Apollo (UA)	54,379,483	35.58%		97,838,105	44.63%	9.05	
78C		DatasII (DL)	357,269	0.23%		601,135	0.27%	0.04	
		Pars (TW)	69,237,604	45.31%	2-FIRM	73,083,412	33.34%	-11.97	2-FIRM
		Sabre (AA)	26,030,595	17.03%	80.89%	33,670,538	15.36%	-1.67	77.97%
		Soda/SysI(EA)	2,811,578	1.84%		14,017,109	6.39%	4.55	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	152,816,529	100.00%		219,210,299	100.00%		
St. Louis	MO	Apollo (UA)	0	0.00%		3,685,059	1.19%	1.19	
82C		DatasII (DL)	0	0.00%		1,544,102	0.50%	0.50	
		Pars (TW)	123,548,576	59.33%	2-FIRM	239,767,231	77.29%	17.96	2-FIRM
		Sabre (AA)	82,364,623	39.55%	98.89%	59,504,750	19.18%	-20.37	96.48%
		Soda/SysI(EA)	674,394	0.32%		5,702,973	1.84%	1.51	
		MarsPlus(TY)	1,640,766	0.79%		0	0.00%		
		Totals	208,228,359	100.00%		310,204,115	100.00%		
Salt Lake City	UT	Apollo (UA)	44,942,794	52.54%		82,708,620	67.03%	14.49	
7160		DatasII (DL)	2,822,944	3.30%		6,112,086	4.95%	1.65	
		Pars (TW)	1,427,454	1.67%	2-FIRM	3,173,719	2.57%	0.90	2-FIRM
		Sabre (AA)	36,269,927	42.40%	94.94%	30,232,261	24.50%	-17.90	91.53%
		Soda/SysI(EA)	75,574	0.09%		1,163,636	0.94%	0.85	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	85,538,693	100.00%		123,390,322	100.00%		
San Diego	CA	Apollo (UA)	56,711,489	30.42%		96,882,160	37.41%	6.98	
7320		DatasII (DL)	3,916,694	2.10%		8,306,042	3.21%	1.11	
		Pars (TW)	16,726,978	8.97%	2-FIRM	20,941,509	8.09%	-0.89	2-FIRM
		Sabre (AA)	107,344,284	57.59%	88.01%	132,001,121	50.96%	-6.62	88.37%
		Soda/SysI(EA)	0	0.00%		873,540	0.34%	0.34	
		MarsPlus(TY)	1,708,831	0.92%		0	0.00%		
		Totals	186,408,276	100.00%		259,004,372	100.00%		
San Francisco	CA	Apollo (UA)	342,240,626	41.53%		466,738,161	42.33%	0.81	
84C		DatasII (DL)	10,519,322	1.28%		22,945,889	2.08%	0.80	
		Pars (TW)	146,099,738	17.73%	2-FIRM	161,514,654	14.65%	-3.08	2-FIRM
		Sabre (AA)	314,642,840	38.18%	79.71%	434,556,164	39.42%	1.24	81.75%
		Soda/SysI(EA)	5,087,515	0.62%		16,739,732	1.52%	0.90	
		MarsPlus(TY)	5,553,257	0.67%		0	0.00%		
		Totals	824,143,298	100.00%		1,102,494,600	100.00%		

			JULY 1982 - JUNE 1983			1986		PCT PT	
CITY/			ANNUAL REVENUE			ANNUAL REVENUE		CHANGE	
MSA	ST	CRS	AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Seattle	WA	Apollo (UA)	136,409,137	50.41%		251,313,980	64.14%	13.73	
91C		DatasII (DL)	5,406,605	2.00%		17,752,940	4.53%	2.53	
		Pars (TW)	6,956,382	2.57%	2-FIRM	11,233,581	2.87%	0.30	2-FIRM
		Sabre (AA)	105,280,455	38.91%	89.32%	95,277,917	24.32%	-14.59	88.46%
		Soda/SysI(EA)	1,310,583	0.48%		16,244,914	4.15%	3.66	
		MarsPlus(TY)	15,214,278	5.62%		0	0.00%		
		Totals	270,577,440	100.00%		391,823,332	100.00%		
Tampa	FL	Apollo (UA)	5,207,171	8.44%		34,064,688	17.90%	9.46	
8280		DatasII (DL)	3,753,540	6.09%		29,759,797	15.64%	9.55	
		Pars (TW)	2,940,079	4.77%	2-FIRM	2,736,505	1.44%	-3.33	2-FIRM
		Sabre (AA)	27,460,925	44.52%	80.70%	45,856,077	24.10%	-20.42	65.02%
		Soda/SysI(EA)	22,314,157	36.18%		77,852,606	40.92%	4.74	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	61,675,872	100.00%		190,269,673	100.00%		
Washington	DC	Apollo (UA)	131,313,219	34.39%		156,716,126	27.60%	-6.79	
8840		DatasII (DL)	1,325,928	0.35%		4,989,927	0.88%	0.53	
		Pars (TW)	28,217,494	7.39%	2-FIRM	39,776,444	7.01%	-0.38	2-FIRM
		Sabre (AA)	202,916,619	53.14%	87.53%	322,168,464	56.74%	3.60	84.34%
		Soda/SysI(EA)	13,135,143	3.44%		44,175,867	7.78%	4.34	
		MarsPlus(TY)	4,940,534	1.29%		0	0.00%		
		Totals	381,848,937	100.00%		567,626,828	100.00%		
MEDIUM HUBS:									
Albuquerque	NM	Apollo (UA)	0	0.00%		557,353	1.11%	1.11	
0200		DatasII (DL)	0	0.00%		4,341,706	8.64%	8.64	
		Pars (TW)	25,863,122	73.74%	2-FIRM	22,866,422	45.52%	-28.22	2-FIRM
		Sabre (AA)	9,208,247	26.26%	100.00%	21,526,295	42.85%	16.60	88.37%
		Soda/SysI(EA)	0	0.00%		942,153	1.88%	1.88	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	35,071,369	100.00%		50,233,929	100.00%		
Anchorage	AK	Apollo (UA)	0	0.00%		26,728,006	28.31%	28.31	
0380		DatasII (DL)	0	0.00%		0	0.00%	0.00	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	86,067,200	100.00%	100.00%	67,690,315	71.69%	-28.31	100.00%
		Soda/SysI(EA)	0	0.00%		0	0.00%	0.00	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	86,067,200	100.00%		94,418,321	100.00%		
Austin	TX	Apollo (UA)	0	0.00%		4,804,033	6.25%	6.25	
0640		DatasII (DL)	7,679,062	16.02%		6,672,184	8.69%	-7.34	
		Pars (TW)	0	0.00%	2-FIRM	1,306,378	1.70%	1.70	2-FIRM
		Sabre (AA)	40,094,681	83.67%	99.69%	61,298,979	79.80%	-3.86	88.49%
		Soda/SysI(EA)	0	0.00%		2,730,093	3.55%	3.55	
		MarsPlus(TY)	148,424	0.31%		0	0.00%		
		Totals	47,922,167	100.00%		76,811,667	100.00%		

CITY/ MSA	ST	CRS	JULY 1982 - JUNE 1983 ANNUAL REVENUE			1986 ANNUAL REVENUE		PCT PT CHANGE	
			AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Baltimore 0720	MD	Apollo (UA)	38,947,817	45.93%		47,339,377	32.82%	-13.11	
		DatasII (DL)	684,481	0.81%		2,526,308	1.75%	0.94	
		Pars (TW)	3,077,229	3.63%	2-FIRM	3,483,192	2.41%	-1.21	2-FIRM
		Sabre (AA)	36,172,580	42.65%	88.58%	72,930,710	50.56%	7.90	83.37%
		Soda/SysI(EA)	1,629,246	1.92%		17,978,890	12.46%	10.54	
		MarsPlus(TY)	4,294,558	5.06%		0	0.00%		
		Totals	84,805,911	100.00%		144,258,477	100.00%		
Buffalo 10C	NY	Apollo (UA)	31,364,078	49.62%		42,529,834	46.38%	-3.24	
		DatasII (DL)	0	0.00%		0	0.00%	0.00	
		Pars (TW)	309,005	0.49%	2-FIRM	367,235	0.40%	-0.09	2-FIRM
		Sabre (AA)	25,106,561	39.72%	89.34%	37,284,481	40.66%	0.94	87.03%
		Soda/SysI(EA)	6,431,581	10.17%		11,524,823	12.57%	2.39	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	63,211,225	100.00%		91,706,373	100.00%		
Cincinnati 21C	OH	Apollo (UA)	0	0.00%		8,187,567	5.55%	5.55	
		DatasII (DL)	4,056,208	4.19%		18,412,055	12.49%	8.30	
		Pars (TW)	6,860,515	7.08%	2-FIRM	7,779,284	5.28%	-1.80	2-FIRM
		Sabre (AA)	83,676,191	86.36%	93.45%	112,065,585	76.02%	-10.34	88.51%
		Soda/SysI(EA)	2,294,349	2.37%		965,583	0.66%	-1.71	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	96,887,263	100.00%		147,410,074	100.00%		
Cleveland 28C	OH	Apollo (UA)	131,738,461	68.13%		183,680,765	65.97%	-2.16	
		DatasII (DL)	2,251,842	1.16%		5,677,918	2.04%	0.87	
		Pars (TW)	545,985	0.28%	2-FIRM	5,034,061	1.81%	1.53	2-FIRM
		Sabre (AA)	54,227,877	28.05%	96.18%	62,839,651	22.57%	-5.48	88.54%
		Soda/SysI(EA)	3,218,599	1.66%		21,180,321	7.61%	5.94	
		MarsPlus(TY)	1,371,820	0.71%		0	0.00%		
		Totals	193,354,584	100.00%		278,412,716	100.00%		
Columbus 1840	OH	Apollo (UA)	7,301,760	9.87%		19,826,869	16.67%	6.80	
		DatasII (DL)	118,529	0.16%		1,913,896	1.61%	1.45	
		Pars (TW)	38,827,833	52.48%	2-FIRM	36,958,485	31.07%	-21.40	2-FIRM
		Sabre (AA)	21,124,850	28.55%	81.03%	49,449,363	41.57%	13.02	72.65%
		Soda/SysI(EA)	3,932,793	5.32%		10,793,489	9.07%	3.76	
		MarsPlus(TY)	2,683,611	3.63%		0	0.00%		
		Totals	73,989,376	100.00%		118,942,102	100.00%		
Dayton 2000	OH	Apollo (UA)	20,778,376	35.69%		27,035,512	27.05%	-8.64	
		DatasII (DL)	0	0.00%		4,437,573	4.44%	4.44	
		Pars (TW)	21,879,164	37.58%	2-FIRM	28,564,061	28.58%	-9.00	2-FIRM
		Sabre (AA)	15,560,570	26.73%	73.27%	39,116,730	39.14%	12.41	67.72%
		Soda/SysI(EA)	0	0.00%		788,714	0.79%	0.79	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	58,218,110	100.00%		99,942,590	100.00%		

CITY/ MSA	ST	CRS	JULY 1982 - JUNE 1983 ANNUAL REVENUE			1986 ANNUAL REVENUE		PCT PT CHANGE MKT SHR	
			AMOUNT	PERCENT		AMOUNT	PERCENT		
El Paso 2320	TX	Apollo (UA)	0	0.00%		381,941	1.22%	1.22	
		DatasII (DL)	0	0.00%		2,570,447	8.24%	8.24	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	19,074,379	100.00%	100.00%	28,247,855	90.54%	-9.46	98.78%
		Soda/SysI(EA)	0	0.00%		0	0.00%	0.00	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	19,074,379	100.00%		31,200,243	100.00%		
Greensboro 3120	NC	Apollo (UA)	26,433,149	73.95%		40,932,893	64.15%	-9.79	
		DatasII (DL)	1,720,232	4.81%		12,906,907	20.23%	15.42	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	0	0.00%	89.02%	2,264,003	3.55%	3.55	84.38%
		Soda/SysI(EA)	2,205,632	6.17%		7,699,981	12.07%	5.90	
		MarsPlus(TY)	5,386,278	15.07%		0	0.00%		
		Totals	35,745,291	100.00%		63,803,784	100.00%		
Hartford 41C	CT	Apollo (UA)	35,919,020	40.12%		54,963,702	39.29%	-0.84	
		DatasII (DL)	2,493,721	2.79%		10,542,416	7.54%	4.75	
		Pars (TW)	5,062,570	5.66%	2-FIRM	5,769,336	4.12%	-1.53	2-FIRM
		Sabre (AA)	45,091,335	50.37%	90.50%	61,441,773	43.92%	-6.45	83.21%
		Soda/SysI(EA)	951,684	1.06%		7,181,160	5.13%	4.07	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	89,518,330	100.00%		139,898,387	100.00%		
Indianapolis 3480	IN	Apollo (UA)	0	0.00%		5,706,584	6.16%	6.16	
		DatasII (DL)	1,939,342	3.39%		7,068,968	7.63%	4.25	
		Pars (TW)	8,347,999	14.58%	2-FIRM	14,702,833	15.88%	1.30	2-FIRM
		Sabre (AA)	37,092,312	64.79%	79.94%	51,007,524	55.09%	-9.70	70.97%
		Soda/SysI(EA)	1,195,853	2.09%		14,107,103	15.24%	13.15	
		MarsPlus(TY)	8,674,872	15.15%		0	0.00%		
		Totals	57,250,378	100.00%		92,593,012	100.00%		
Jacksonville 3600	FL	Apollo (UA)	623,411	2.31%		6,306,750	10.32%	8.01	
		DatasII (DL)	1,894,776	7.02%		4,658,067	7.62%	0.60	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	20,777,580	76.98%	87.11%	42,239,309	69.12%	-7.86	82.06%
		Soda/SysI(EA)	2,734,723	10.13%		7,906,826	12.94%	2.81	
		MarsPlus(TY)	960,494	3.56%		0	0.00%		
		Totals	26,990,984	100.00%		61,110,952	100.00%		
Kansas City 47C	MO	Apollo (UA)	20,781,787	16.22%		26,801,650	13.91%	-2.31	
		DatasII (DL)	3,175,044	2.48%		3,938,903	2.04%	-0.43	
		Pars (TW)	94,864,292	74.04%	2-FIRM	119,666,561	62.13%	-11.92	2-FIRM
		Sabre (AA)	9,302,196	7.26%	90.26%	20,223,842	10.50%	3.24	76.04%
		Soda/SysI(EA)	0	0.00%		21,990,682	11.42%	11.42	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	128,123,319	100.00%		192,621,638	100.00%		

CITY/			JULY 1982 - JUNE 1983			1986		PCT PT	
			ANNUAL REVENUE			ANNUAL REVENUE		CHANGE	
MSA	ST	CRS	AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Milwaukee	WI	Apollo (UA)	66,991,702	62.89%		94,796,614	62.02%	-0.87	
63C		DatasII (DL)	0	0.00%		0	0.00%	0.00	
		Pars (TW)	5,708,213	5.36%	2-FIRM	4,774,055	3.12%	-2.24	2-FIRM
		Sabre (AA)	30,953,632	29.06%	91.95%	44,414,559	29.06%	-0.00	91.08%
		Soda/SysI(EA)	1,515,714	1.42%		8,864,993	5.80%	4.38	
		MarsPlus(TY)	1,346,352	1.26%		0	0.00%		
		Totals	106,515,613	100.00%		152,850,221	100.00%		
Nashville	TN	Apollo (UA)	0	0.00%		1,604,434	1.63%	1.63	
5360		DatasII (DL)	0	0.00%		4,127,871	4.20%	4.20	
		Pars (TW)	0	0.00%	2-FIRM	1,947,083	1.98%	1.98	2-FIRM
		Sabre (AA)	45,328,809	97.60%	100.00%	82,741,414	84.28%	-13.32	92.18%
		Soda/SysI(EA)	1,115,716	2.40%		7,755,966	7.90%	5.50	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	46,444,525	100.00%		98,176,768	100.00%		
New Orleans	LA	Apollo (UA)	8,870,037	20.02%		16,882,783	22.12%	2.10	
5560		DatasII (DL)	3,602,595	8.13%		19,752,408	25.88%	17.75	
		Pars (TW)	0	0.00%	2-FIRM	2,080,742	2.73%	2.73	2-FIRM
		Sabre (AA)	24,748,776	55.86%	75.88%	26,193,616	34.32%	-21.53	60.21%
		Soda/SysI(EA)	7,086,266	15.99%		11,404,551	14.94%	-1.05	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	44,307,674	100.00%		76,314,100	100.00%		
Norfolk	VA	Apollo (UA)	24,397,692	61.44%		26,844,613	42.60%	-18.84	
5720		DatasII (DL)	137,037	0.35%		2,072,071	3.29%	2.94	
		Pars (TW)	0	0.00%	2-FIRM	1,041,893	1.65%	1.65	2-FIRM
		Sabre (AA)	4,120,798	10.38%	75.53%	10,447,473	16.58%	6.20	78.48%
		Soda/SysI(EA)	5,592,110	14.08%		22,603,026	35.87%	21.79	
		MarsPlus(TY)	5,459,258	13.75%		0	0.00%		
		Totals	39,706,895	100.00%		63,009,076	100.00%		
Oklahoma City	OK	Apollo (UA)	791,963	1.30%		1,394,416	1.55%	0.24	
5880		DatasII (DL)	278,486	0.46%		864,396	0.96%	0.50	
		Pars (TW)	15,578,101	25.65%	2-FIRM	18,040,898	20.03%	-5.62	2-FIRM
		Sabre (AA)	42,058,125	69.24%	94.88%	67,020,740	74.41%	5.17	94.44%
		Soda/SysI(EA)	2,038,016	3.36%		2,751,506	3.05%	-0.30	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	60,744,691	100.00%		90,071,956	100.00%		
Omaha	NE	Apollo (UA)	31,172,651	54.18%		60,094,848	78.49%	24.32	
5920		DatasII (DL)	0	0.00%		0	0.00%	0.00	
		Pars (TW)	2,389,796	4.15%	2-FIRM	8,208,990	10.72%	6.57	2-FIRM
		Sabre (AA)	21,191,133	36.83%	91.01%	4,790,702	6.26%	-30.57	89.22%
		Soda/SysI(EA)	857,340	1.49%		3,464,366	4.53%	3.04	
		MarsPlus(TY)	1,925,324	3.35%		0	0.00%		
		Totals	57,536,244	100.00%		76,558,906	100.00%		

CITY/			JULY 1982 - JUNE 1983 ANNUAL REVENUE			1986 ANNUAL REVENUE		PCT PT CHANGE	
MSA	ST	CRS	AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Portland	OR	Apollo (UA)	87,600,282	70.42%		134,861,932	72.66%	2.23	
79C		DatasII (DL)	1,622,049	1.30%		6,079,654	3.28%	1.97	
		Pars (TW)	815,356	0.66%	2-FIRM	2,213,602	1.19%	0.54	2-FIRM
		Sabre (AA)	32,676,064	26.27%	96.69%	35,932,845	19.36%	-6.91	92.02%
		Soda/SysI(EA)	0	0.00%		6,524,872	3.52%	3.52	
		MarsPlus(TY)	1,676,789	1.35%		0	0.00%		
		Totals	124,390,540	100.00%		185,612,905	100.00%		
Raleigh	NC	Apollo (UA)	38,863,267	83.04%		62,867,551	66.79%	-16.25	
6640		DatasII (DL)	0	0.00%		1,846,466	1.96%	1.96	
		Pars (TW)	0	0.00%	2-FIRM	13,625	0.01%	0.01	2-FIRM
		Sabre (AA)	1,696,474	3.62%	96.38%	9,668,656	10.27%	6.65	87.75%
		Soda/SysI(EA)	6,242,280	13.34%		19,733,300	20.96%	7.63	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	46,802,021	100.00%		94,129,598	100.00%		
Reno	NV	Apollo (UA)	14,094,792	68.74%		17,853,750	63.12%	-5.62	
6720		DatasII (DL)	367,977	1.79%		636,052	2.25%	0.45	
		Pars (TW)	592,183	2.89%	2-FIRM	0	0.00%	-2.89	2-FIRM
		Sabre (AA)	4,916,789	23.98%	92.72%	6,659,912	23.55%	-0.44	86.67%
		Soda/SysI(EA)	531,584	2.59%		3,135,804	11.09%	8.49	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	20,503,325	100.00%		28,285,518	100.00%		
Rochester	NY	Apollo (UA)	13,883,441	20.68%		64,944,171	52.89%	32.22	
6840		DatasII (DL)	0	0.00%		0	0.00%	0.00	
		Pars (TW)	0	0.00%	2-FIRM	0	0.00%	0.00	2-FIRM
		Sabre (AA)	49,347,123	73.49%	94.17%	45,743,416	37.25%	-36.24	90.15%
		Soda/SysI(EA)	3,365,423	5.01%		12,099,859	9.85%	4.84	
		MarsPlus(TY)	550,501	0.82%		0	0.00%		
		Totals	67,146,488	100.00%		122,787,446	100.00%		
Sacramento	CA	Apollo (UA)	40,640,980	59.36%		57,144,607	55.03%	-4.33	
6920		DatasII (DL)	1,340,865	1.96%		2,204,437	2.12%	0.16	
		Pars (TW)	9,852,980	14.39%	2-FIRM	9,343,089	9.00%	-5.39	2-FIRM
		Sabre (AA)	15,638,858	22.84%	82.20%	32,325,764	31.13%	8.29	86.16%
		Soda/SysI(EA)	0	0.00%		2,827,315	2.72%	2.72	
		MarsPlus(TY)	991,652	1.45%		0	0.00%		
		Totals	68,465,335	100.00%		103,845,212	100.00%		
San Antonio	TX	Apollo (UA)	2,256,268	4.61%		8,423,357	12.50%	7.89	
7240		DatasII (DL)	2,331,664	4.77%		3,632,015	5.39%	0.62	
		Pars (TW)	1,068,447	2.19%	2-FIRM	3,782,278	5.61%	3.43	2-FIRM
		Sabre (AA)	41,682,853	85.24%	90.01%	48,465,966	71.93%	-13.31	84.43%
		Soda/SysI(EA)	76,610	0.16%		3,073,047	4.56%	4.40	
		MarsPlus(TY)	1,482,060	3.03%		0	0.00%		
		Totals	48,897,902	100.00%		67,376,663	100.00%		

CITY/			JULY 1982 - JUNE 1983			1986		PCT PT	
			ANNUAL REVENUE			ANNUAL REVENUE		CHANGE	
MSA	ST	CRS	AMOUNT	PERCENT		AMOUNT	PERCENT	MKT SHR	
Syracuse	NY	Apollo (UA)	0	0.00%		10,363,515	21.82%	21.82	
8160		DatasII (DL)	0	0.00%		0	0.00%	0.00	
		Pars (TW)	635,029	2.29%	2-FIRM	624,368	1.31%	-0.98	2-FIRM
		Sabre (AA)	27,002,452	97.41%	99.70%	35,680,951	75.12%	-22.29	96.94%
		Soda/SysI(EA)	82,628	0.30%		828,246	1.74%	1.45	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	27,720,109	100.00%		47,497,080	100.00%		
Tucson	AZ	Apollo (UA)	3,542,993	6.33%		8,033,777	10.93%	4.60	
8520		DatasII (DL)	0	0.00%		123,386	0.17%	0.17	
		Pars (TW)	13,192,642	23.57%	2-FIRM	17,532,191	23.86%	0.29	2-FIRM
		Sabre (AA)	37,988,397	67.87%	91.44%	44,851,829	61.03%	-6.84	84.89%
		Soda/SysI(EA)	470,471	0.84%		2,950,010	4.01%	3.17	
		MarsPlus(TY)	778,077	1.39%		0	0.00%		
		Totals	55,972,580	100.00%		73,491,193	100.00%		
Tulsa	OK	Apollo (UA)	1,185,975	2.25%		1,481,680	2.25%	-0.00	
8560		DatasII (DL)	1,268,942	2.41%		743,966	1.13%	-1.28	
		Pars (TW)	20,315,492	38.58%	2-FIRM	13,899,538	21.10%	-17.48	2-FIRM
		Sabre (AA)	29,892,862	56.76%	95.34%	49,436,989	75.04%	18.28	96.14%
		Soda/SysI(EA)	0	0.00%		320,361	0.49%	0.49	
		MarsPlus(TY)	0	0.00%		0	0.00%		
		Totals	52,663,271	100.00%		65,882,534	100.00%		
West Palm Beach	FL	Apollo (UA)	6,405,148	12.85%		24,880,544	23.98%	11.13	
8960		DatasII (DL)	3,400,699	6.82%		19,776,838	19.06%	12.24	
		Pars (TW)	3,972,202	7.97%	2-FIRM	5,368,430	5.18%	-2.79	2-FIRM
		Sabre (AA)	17,267,519	34.64%	62.58%	19,943,602	19.23%	-15.42	56.53%
		Soda/SysI(EA)	13,924,529	27.94%		33,764,674	32.55%	4.61	
		MarsPlus(TY)	4,872,951	9.78%		0	0.00%		
		Totals	49,843,048	100.00%		103,734,088	100.00%		

CITY/ MSA	ST	CRS	JULY 1982 - JUNE 1983 ANNUAL REVENUE			1986 ANNUAL REVENUE		PCT PT CHANGE MKT SHR	
			AMOUNT	PERCENT		AMOUNT	PERCENT		
SUMMARY TOTALS									
LARGE HUBS		Apollo (UA)	2,581,246,802	28.78%		4,141,965,686	30.25%	1.47	
		DatasII (DL)	163,175,911	1.82%		534,158,964	3.90%	2.08	
		Pars (TW)	1,089,990,542	12.15%	2-FIRM	1,444,800,736	10.55%	-1.60	2-FIRM
		Sabre (AA)	4,633,704,228	51.66%	80.44%	6,373,709,429	46.54%	-5.12	76.79%
		Soda/SysI(EA)	357,883,785	3.99%		1,199,387,980	8.76%	4.77	
		MarsPlus(TY)	143,293,967	1.60%		0	0.00%		
		TOTAL	8,969,295,235	100.00%		13,694,022,795	100.00%		
MEDIUM HUBS		Apollo (UA)	654,585,050	32.50%		1,088,255,428	34.74%	2.23	
		DatasII (DL)	40,363,551	2.00%		147,526,908	4.71%	2.70	
		Pars (TW)	279,758,155	13.89%	2-FIRM	335,368,630	10.70%	-3.19	2-FIRM
		Sabre (AA)	929,087,223	46.13%	78.64%	1,293,944,849	41.30%	-4.83	76.04%
		Soda/SysI(EA)	67,493,147	3.35%		267,891,714	8.55%	5.20	
		MarsPlus(TY)	42,603,021	2.12%		0	0.00%		
		TOTAL	2,013,890,147	100.00%		3,132,987,529	100.00%		
TOTAL LARGE AND MEDIUM HUBS		Apollo (UA)	3,235,831,852	29.46%		5,230,221,114	31.08%	1.62	
		DatasII (DL)	203,539,462	1.85%		681,685,872	4.05%	2.20	
		Pars (TW)	1,369,748,697	12.47%	2-FIRM	1,780,169,366	10.58%	-1.89	2-FIRM
		Sabre (AA)	5,562,791,451	50.65%	80.11%	7,667,654,278	45.57%	-5.08	76.65%
		Soda/SysI(EA)	425,376,932	3.87%		1,467,279,694	8.72%	4.85	
		MarsPlus(TY)	185,896,988	1.69%		0	0.00%		
		TOTAL	10,983,185,382	100.00%		16,827,010,324	100.00%		

SOURCE: 1983 Revenue Data - Department of Justice, Appendix A to the Comments and Proposed Rules, Advance Notice of Proposed Rulemaking - - Airline Computer Reservations Systems, November 1983. 1986 Revenue Data - Airlines Reporting Corporation, Agency Location Sales On Behalf of Individual Airlines (Agency/Airline year sales tape - 445).

* The "Primary System" in those agencies that employ multiple CRSs is defined as the CRS that books the largest amount of total agency bookings.

NOTE: MSA codes ending in "C" represent a 1983 CMSA to 1986 MSA/NECMA conversion.

1983 CMSA TO 1986 MSA/NECMA CONVERSION

CMSA	MSA	NECMA
07		1123, 4763, 54[illegible]3, 6453, 9243
10	1280, 5700	
14	0620, 1600, 2960, 3690, 3800, 3965	
21	1640, 3200	
28	0080, 1680, 4440	
31	1920, 2800	
34	1125, 2080	
35	0440, 2160	
41		3283
42	1145, 2920, 3360	
47	3760	
49	0360, 4480, 6000, 6780	
56	2680, 5000	
63	5080	
70	0875, 3640, 5015, 5190, 5380, 5600, 5640, 5950	1163, 5483
77	6160, 8480, 8760, 9160	
78	0845, 6280	
79	6440, 8725	
80		5403, 6483
82	7040	
84	5775, 7360, 7400, 7485, 7500, 8720	
91	7600, 8200	

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CASS BALLENGER, NORTH CAROLINA
FRED UPTON, MICHIGAN

Committee on Public Works and Transportation
One Hundredth Congress
U.S. House of Representatives
Room 2165, Rayburn House Office Building
Washington, DC 20515
TELEPHONE: AREA CODE 202, 225-4472

July 13, 1988

Honorable James Burnley IV
Secretary of Transportation
Washington, D.C. 20590

Dear Jim:

I am writing to discuss the Department of Transportation's recent "Study on Airline Computer Reservation Systems" (May 1988), and on further actions which are needed to follow up on that study.

In May 1986, Senator Kassebaum, Congressman Hammerschmidt and I asked the Department to undertake a study on the effects of certain practices in the computer reservation systems (CRS) industry on competition between airlines. DOT's report in May 1988 indicates that our concerns were well-founded. Some of the disturbing findings in the DOT report are as follows:

(1) Market Shares. The DOT study concludes that the CRS systems marketed by two airlines, United and American, continue to dominate the industry. The DOT study shows that in the year studied, 1986, American's and United's CRSs together accounted for 75.3% of all revenues handled by automated travel agents.

(2) Difficulties of New Competition. The DOT report concludes that there are important barriers to new entry in the CRS industry by other airlines, particularly "the substantial sunk costs that would will have to be incurred to develop a competitive CRS, the economies of scale and scope that the largest vendors appear to enjoy, and the time and expense it would take to acquire a critical mass of subscribers."

With respect to potential entrants which are not airlines, the DOT report concludes that "the fact that CRSs evolve from airline internal reservation systems and the benefits that airlines derive from the CRS make it unlikely that a non-airline will attempt to enter the CRS market in the future."

(3) The Booking Fees Charged by United and American to Other Airlines Exceed American's and United's Costs. United and American charge other airlines a fee of $1.85 for every booking made on United or American's CRS. The DOT report concludes that under DOT's best estimate, United and American's charges to other air carriers are "roughly twice (United and American's) average unit cost per passenger segment booked."

(4) Lack of Influence of Other Airlines Over Booking Fees. The report concluded that "participating airlines' ability to influence the level of booking fees charged by the vendors appears to be limited because non-CRS owning airlines have no mechanism to influence their passengers to patronize travel agents equipped with CRSs that charge lower booking fees, or to persuade travel agents to equip themselves with such systems."

(5) Transfer of Revenues From Other Carriers to United and American. In view of the fact that 75% of all CRS tickets (measured by revenues) are written on United and American's CRS, a significant portion of the $450-600 million a year these two carriers receive in booking fees represents a net transfer of industry revenues from other carriers to United and American.

The DOT report also concludes that CRS owners continue to receive incremental revenues, that is, excess revenues obtained because of the tendency of travel agents to book on the airline owning their CRS. Again, because American and United have such a large share of the CRS market they obtain substantially more incremental revenues than the other carriers owning CRSs.

The DOT report does not estimate the total net revenues which are being transferred to American and United each year as a result of excessive booking fees and incremental revenues. The data in the report suggest that these amounts may total more than a billion dollars a year.

(6) United's and American's CRSs Are Highly Profitable.

The DOT report found that United and American are receiving a 60-100% return on investment using conventional accounting methodology. If economic methods of measuring rate of return are used, United and American's rate of return may be even higher.

Although the DOT report is an excellent analysis of complex data and includes many useful findings of facts, it is regrettable that the report stops short of reaching conclusions on the ultimate issues involved. The report does not reach conclusions on how much revenue is being transferred to American and United from the rest of the industry; on what effects these revenue transfers have had and will have on airline competition; or whether the revenue transfers and other anti-competitive aspects of the CRS industry were an important cause of the wave of airline mergers, the disappearance of the new entrant carriers, and the lack of any recent new entry. Nor does the report reach any conclusions about whether various provisions in contracts between CRS owners and travel agents are unfair competitive practices which unreasonably restrain competition between CRS owners.

In addition, we are concerned that neither the DOT report nor subsequent statements by the Department give any indication as to whether the Department feels that any regulatory or legislative action is needed to deal with the problems disclosed in the report.

The Aviation Subcommittee is planning to hold hearings in September on the DOT report and on the need for further action by the government. To ensure that the hearings address issues of great concern to the Committee, we have prepared a series of written questions which are attached to this letter. We would like to receive your written answers to each of these questions one week before the hearing. The hearing would consider your written responses and we would, of course, welcome any additional comments you would care to make in written and oral testimony, submitted in accordance with the Committee's normal procedures.

Thank you for your cooperation.

Sincerely,

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

QUESTIONS FOR DEPARTMENT OF TRANSPORTATION

1. Please furnish the Committee with DOT's best estimate of the net revenue transfer to American Airlines and United Airlines from the rest of the industry based upon DOT's May 1988 CRS report.

   a) For the period prior to November 1984.
   b) For the period subsequent to November 1984 through December 31, 1987.

2. Do you believe that revenue transfers of this magnitude would have any effect on airline competition?

   -- on scheduling
   -- on fares
   -- on equipment decisions
   -- on decisions on cities and markets to be served

3. Given the magnitude of those revenue transfers, what role do you believe that CRS ownership played in the post-CAB sunset wave of airline mergers?

4. The early years of deregulation were characterized by many new competitors, some of which grew quite dramatically. In recent years, however, there has been little new entry, and most of the existing new entrants have ceased to exist. Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

5. It appears from the data in the DOT report (see especially Tables 4.2 and 4.12) that the dominance of the two largest CRS vendors is generating a revenue transfer from other airlines of $1-2 billion per year ($1 billion if the vendors' estimate of "halo" is correct, $2 billion if the Department's estimate of "halo" is correct). Is it the position of the Department that transfers of that order of magnitude have no adverse impact on airline competition? Why did the report fail to aggregrate the various calculations that it made into a single estimate of the revenue transfer? Why did it fail to appraise the significance of those transfers for airline competition and the public interest?

6. Various airlines, travel agent groups, and others have made in recent months suggestions to DOT with respect to regulatory actions which they believe should be taken to reduce the dominant vendors' market power. Would you please list for us without necessarily identifying the source, what specific suggestions were made for DOT consideration. Did your Department consider each of these proposals? May we have DOT's evaluation of the proposals made to it? Were there any other proposals internally developed which were considered? If so, what was DOT's evaluation of each of those?

7. If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal or proposals, if any, would you regard as most effective and appropriate for adoption by DOT?

8. What is your position on whether minimum use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

If you believe that it does have such an effect, do you think that DOT should take action to clarify that Section 255.6(b) of DOT's regulations precludes the use of minimum use clauses?

9. Has DOT addressed the question of what effect, if any, inhibition of conversion efforts resulting from restrictive contractual provisions has had on CRS competition or airline competition? If so, what conclusions have you reached?

On page 135 of the May 1988 CRS report, DOT suggests but does not resolve certain pertinent questions relative to whether the new restrictive subscriber contract clauses are unfair competitive practices and what the effect on air transportation competition might be if they were barred. For example, the Department states, "The question here is whether the benefits of these contracts (or particular provisions) are outweighed by a purpose or effect that unreasonably

restrains competition." Obviously that is the question; what is the answer? The Department has the statutory responsibility to prevent "unfair methods of competition in air transportation or the sale thereof" (Section 411 of the Federal Aviation Act). Having raised the appropriate questions about CRS contracts, does the Department take the position it has no obligation to provide the answers? If not, what is the Department's position on whether these contracts contain elements which unreasonably restrain competition?

10. In general, the DOT report contains a wealth of important information about CRSs and their impact on airline competition. Among the major points which emerge from the report are:

- The dominant CRS vendors have and exercise significant monopoly pricing power, reflected in the fact that they charge other airlines at least double what it costs to provide the service.
- The dominant CRS vendors enjoy extraordinarily high profits from their CRS operations (Internal Rates of Return estimated by DOT at 108.9% and 129.5% for Apollo and Sabre respectively), producing revenue transfers among airlines of $1-2 billion per year.

- Other airlines may be barred from making their own competitive responses (i.e. successfully marketing their own CRSs), and travel agents may be barred from freely choosing among CRSs, by a variety of agent-vendor contract clauses which may have an anti-competitive effect or purpose.

Obviously, these points raise major concerns about trends in the degree of competition among airlines, concerns which affect the interests of consumers, airlines, travel agents, and which ultimately threaten the viability of deregulation. Yet the Department, despite the wealth of information in its report, has chosen to draw no conclusions and has thus far chosen to take no action. Is that because the Department has concluded that no action is warranted; or does the Department have a plan of action and; if so, what is it?

11. In the last year, has DOT had any discussions with the Office of Management and Budget on rulemaking to deal with CRS problems? If so, what are OMB's views on the desirability of such rulemaking?

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

SEP 9 1988

The Honorable Norman H. Mineta
Chairman, Subcommittee on Aviation
House of Representatives
Washington, D.C. 20515

Dear Norm:

Thank you for your letter on the Department's Study of Airline Computer Reservation Systems. I appreciate your kind words on the quality of our analysis. Enclosed you will find our responses to the questions you attached to your letter.

Several of your questions ask us to estimate and discuss what you refer to as "net revenue transfers." As our answers detail, we are unable to make any useful or reliable estimates of such a measure. While our study clearly supports the conclusion that each vendor has enjoyed substantial benefits from its own CRS investments, we are not able to estimate net gains or losses from CRSs on an industrywide basis. It also is not clear whether such estimates would be particularly useful for evaluating the role of CRSs for influencing airline competition.

Our study estimated the gross incremental revenues a vendor airline receives from owning a CRS. Several of your questions seem to imply that our gross revenue estimates may approximate net revenue transfers. This is not the case. In fact, we are unable to calculate net revenue transfers for several reasons, although as we explain in our responses to your questions, we believe they are substantially lower than our gross revenue estimates. For example, our revenue figures reflect only incremental gains in passenger traffic realized by each vendor through its CRS. But each vendor airline participates in all other CRSs, and thus some portion of any incremental passenger revenue a vendor airline receives is offset to some degree by what it loses to other vendors. I would also point out that any consideration of "net" winners or losers from CRSs should take account of the fact that the development of CRSs has benefited all parties, including non-vendor airlines, travel agents, and the public.

Much of the innovation and consequent public benefits flowing from CRSs have been spurred by the intense competition among vendors for travel agent subscribers. We must not lose sight of the fact that there is more rivalry in the CRS industry for subscribers today than there was in the past. A recent travel agent survey conducted by Travel Weekly (June 29), for example, indicates that one in ten agency locations has switched primary reservation systems in the past two years, and that 58 percent of all automated locations have been approached about switching systems in the past year.

Other promising developments are taking place as well. United's recent sale of a 50 percent interest in the APOLLO system to a group of domestic and foreign airlines highlights a recent trend toward the separation of airline and CRS operations. Also, the CRS industry is becoming more "international," with consortia of foreign and domestic air carriers combining to provide CRS services in Europe and Asia, and with other U.S. vendors entering those markets on their own.

Given these developments, our continued oversight of the CRS industry, and the rules that are already in place, we do not think it would be in the best interests of the traveling public or the airline industry to propose any sweeping new CRS regulations at this time. We are, of course, willing to consider, and are considering, proposals to improve our regulation of the CRS industry.

I hope this information is helpful.

Sincerely,

ORIGINAL SIGNED BY

Jim Burnley

Enclosure

P-37:LPhillips:glc:7-20-88:65412
Rewritten, 7/88 and 8-12-88 w/ RYoung(C-30)
Rewritten per B and C edits on 8/26/88
Os&As rewritten, 9-8-88; letter edited, 9-9-88
Control No. 880715-001
cc: P-1,2,3,4,5,6,8,30,31,37,Belenky,Bowser
S-1(AB),S-10,B-1,C-1,I-1,M-1
gloriac/docs/Mineta

QUESTION 1: Please furnish the Committee with DOT's best estimate of the net revenue transfer to American Airlines and United Airlines from the rest of the industry based upon DOT's May 1988 CRS report for the period prior to November 1984 and for the period subsequent to November 1984 through December 31, 1987.

ANSWER: For a variety of reasons, the data reported in the study on unit costs and revenues, financial benefits of CRS ownership, and incremental revenue estimates do not provide a reliable measure of any net revenue transfer, as we understand that phrase, to American and United; nor do they provide a basis for constructing an estimate of these transfers.* A number of considerations, however, lead us to conclude that any net revenue transfer is much smaller than the $1 to 2 billion figure cited in Question 5.

Our study attempted to measure the increased airline revenue that vendors generate for their airline affiliates by having their CRSs placed in travel agents on a national level. These figures cannot readily be recast into net revenue transfers. First, the figures in the study reflect only incremental gains in passenger traffic realized by each vendor through its own CRS. Both American and United are participants in other CRSs, and some portion of the incremental revenue that the other vendors gain will come at the expense of United and American. Any attempt to estimate the net revenue transfers to American and United would thus have to account for their revenue losses to other CRSs.

It may well be that American and United are in fact net gainers in this respect. Whether this is true and the size of any gain will be influenced by a number of factors, principally the structure of local CRS and airline markets and booking patterns of individual travel agencies. The data gathered by the Department do not permit the kind of market-by-market and agent-by-agent calculations necessary to estimate any net incremental revenue gains (or losses) of any vendor. We feel confident in concluding, though, that the large vendors' incremental revenue losses through other systems would negate a significant portion of the gains they realize through their own systems.

Even if the Department could reliably estimate the net amount of incremental revenues that American and United gain, any attempt to estimate net revenue transfers should also reflect cost considerations. For incremental airline revenues, the vendor airline benefits only to the extent that incremental revenues exceed the costs of carrying additional traffic. As our study shows, these benefits can vary greatly depending on one's assumption about the costs which American and United incur to carry this traffic. The appropriate costs to assign to incremental traffic also depend on a variety of factors, particularly the level of "capacity costs" properly attributed to this traffic. Carrier decisions on the amount of capacity to supply to a market (including both number of flights scheduled and equipment size) will be influenced by a number of considerations, and a carrier's projections of the amount of traffic it will carry is no doubt one of them. The data used in our CRS study, however, do not permit us to determine exactly what factors influence individual carriers' capacity decisions, and any effort by the Department to project a "typical" capacity decision model would be of questionable utility. In these circumstances, the Department is simply unable to incorporate the appropriate capacity costs in calculating the net revenue transfer to American and United.

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* The term "net revenue transfer" is not defined. It it assumed for purposes of this answer that the "revenue transfers" referred to are composed of two elements -- incremental airline revenues enjoyed by the airline affiliate of the vendor, and some portion of the booking fees paid to the vendors by participating airlines.

The other source of potential revenue transfer to American and United is booking fees paid by participating airlines. While some information in the report suggests that booking fees generate large profits for the vendors, a number of factors preclude reliance on the figures in the report to calculate net revenue transfers. First, as in the case of incremental revenues, any estimate of net revenue transfer should account for the booking fees that American and United pay to other vendors. The amount paid will depend on the booking patterns of individual travel agents that in turn will be influenced by conditions of local CRS and airline markets. American and United may well be net gainers in this exchange of booking fee revenues, although as large airlines their sales could potentially generate substantial bookings through other CRSs. The Department does not have the information necessary to do the market-by-market analysis necessary to determine precise booking patterns.

Cost considerations would also be relevant in attempting to determine the net revenues gained by vendors through receipt of booking fees from other airlines. Since participating airlines purchase a service with their booking fee payments, it may be appropriate to consider as a net revenue transfer the difference between booking fees actually paid and the potential cost to participating carriers of purchasing the services in a competitive market or of providing these services for themselves. While the CRS study attempted to estimate the average unit booking costs of providing CRS services, the study also demonstrates that these costs vary widely depending on the vendor, as well as how costs are allocated between servicing participating carriers and travel agent subscribers. If a participating airline had to provide CRS services (or an alternative means of communicating with travel agents) directly, its costs could be higher than the booking fees it now pays. In that case, the booking fees might actually represent cost savings for participating air carriers.

It is possible to estimate from information contained in the DOT report the gross revenues received by American and United from all other airlines through 1986. Because all of the information submitted to the Department by each CRS vendor was compiled for calendar years, it is not possible to allocate reliably revenues received during 1984 between those received during the January-November 1984 period and those received during December 1984. Further, at the time the study was performed no data for 1987 revenues were available from any of the vendors; only the Department's own estimates are available for 1987.

Using data reported in Tables 4.1, 4.2, 4.6, and 4.7 of the DOT report, the estimated gross revenues received by American and United from other airlines (thus excluding revenues received from travel agents) are presented below. We have not subtracted the booking fee revenues American pays to United or United pays to American.

Recipient	Source	Estimated Total Through 1984	($ Millions) 1985-6	1987
American Airlines	Booking Fees	$193.9	$430.0	$250.6
American Airlines	Incremental Revenues	$1,426.3	$539.0	$276.1
United Airlines	Booking Fees	$154.4	$327.0	$173.4
United Airlines	Incremental Revenues	$788.8	$483.0	$291.6

As suggested above, some portion of American's booking fees and incremental revenues was received from United. Likewise, a portion of United's booking fees and incremental revenues was received from American.

QUESTION 2: Do you believe that revenue transfers of this magnitude would have any effect on airline competition? On scheduling? On fares? On equipment decisions? And on decisions on cities and markets to be served?

ANSWER: As discussed in our response to Question 1, we are unable to estimate net revenue transfers to the vendor airlines. Nevertheless, the report suggests that CRS ownership confers competitive advantages on vendors in some circumstances, especially when compared to non-vendor airlines. To the extent CRS ownership does so, CRSs may well affect the decisions of vendor airlines and non-vendor airlines alike on fares, schedules, equipment, and city-pair markets to be served.

We are, however, unable to say exactly what that competitive impact of CRS ownership is. Airline competition depends on the interaction of a number of factors. Non-vendor air carriers may have other competitive advantages -- lower labor costs, more efficient aircraft, the benefits of hub-and-spoke systems -- not available to a vendor airline in particular markets that would offset the competitive advantages of CRS ownership. Any attempt to draw conclusions about the impact of CRS ownership on competition in these markets based upon estimates of national net revenue transfers to vendors, even if such estimates could be made reliably, would be suspect.

There is good reason to believe that the vendors produce CRS services more cheaply than would be the case if non-CRS-owning airlines had to provide these services internally. Thus, while there may be a net revenue transfer from non-CRS-owning airlines to the vendor airlines, the non-CRS-owning airlines are probably saving substantial amounts of money over what they would incur if they chose to produce these services for themselves.

The competitive benefits of CRS ownership are potentially substantial. Indeed, airlines' perceptions of the benefits of CRS ownership may explain why there has been a diffusion of CRS ownership over the last two years, with Northwest's acquisition of 50 percent of TWA's PARS, Texas Air Corporation's acquisition of Eastern's SYSTEMONE, and the acquisition by USAir and several foreign carriers of equity positions in United's APOLLO system. But the fact that CRS ownership may give competitive advantages to vendors by itself does not necessarily mean that CRS ownership is an unfair method of competition or that additional regulatory action is required under section 411 of the Federal Aviation Act.

QUESTION 3: Given the magnitude of those revenue transfers, what role do you believe that CRS ownership played in the post-CAB sunset wave of airline mergers?

ANSWER: Clearly, CRSs provide the air carriers affiliated with them with a competitive advantage; and carriers' perception of the magnitude of this advantage can have an influence on their decisions about mergers and acquisitions. Our study did not address this issue directly, although several of the airline mergers that have occurred were not influenced by CRS concerns. For example, neither Republic nor Northwest owned a CRS when they merged. Moreover, Piedmont and USAir, two airlines that do not own a CRS, chose to merge with each other rather than with a CRS-owning airline.

QUESTION 4: The early years of deregulation were characterized by many new competitors, some of which grew quite dramatically. In recent years, however, there has been little new entry, and most of the existing new entrants have ceased to exist. Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

ANSWER: The Department's CRS study demonstrated that the vendor airlines benefit from the "halo effect" they secure by automating travel agents. A new entrant that had to compete with a CRS-owning airline would have to find a way to overcome this disadvantage -- for example, by offering travel agents override commissions or by offering travelers better service at a lower fare. While it may be difficult for a new entrant to overcome all the competitive advantages that many major airlines enjoy, these advantages are not insurmountable; indeed, carriers such as Midway, Southwest, America West, and the New Braniff have remained vigorous competitors even though they compete against airlines that own CRSs.

It is also important to recognize that CRSs have procompetitive effects. By providing a large number of travel agents with information on the fares and services available from new entrant air carriers, CRSs may very well make it easier and less costly for a new entrant to enter and market and compete successfully with established airlines.

QUESTION 5: It appears from the data in the DOT report (see especially Tables 4.2 and 4.12) that the dominance of the two largest CRS vendors is generating a revenue transfer from other airlines of \$1-\$2 billion per year (\$1 billion if the vendors' estimate of the "halo" is correct, \$2 billion if the Department's estimate of "halo" is correct). Is it the position of the Department that transfers of that order of magnitude have no adverse impact on airline competition? Why did the report fail to aggregate the various calculations that it made into a single estimate of the revenue transfer? Why did it fail to appraise the significance of those transfers for airline competition and the public interest?

ANSWER: The Department's report did not report an estimate of the net revenue transfer to any individual CRS vendor or appraise the significance of such transfers for several reasons. As we discussed in our answer to Question 1, it is not possible to make reliable estimates of such transfers.

Each vendor airline participates as a customer in the other four systems. Because of this participation, there is a complex pattern of booking fee payments and incremental revenue shifts between the various vendors. Without detailed information on the booking patterns of individual agents and on the characteristics of local CRS and air transportation markets, it is not possible to estimate net revenue transfers to the largest vendors, although it is obvious that all vendors will receive some "revenue transfers" from non-vendor airlines. Nevertheless, even before taking other factors into account, we are confident that any net revenue transfer is substantially below the \$1 to \$2 billion figure stated in your question.

In addition, any attempt to estimate net revenue transfers, whether based on incremental revenues or on booking fees, must reflect cost considerations. As discussed in response to Question 1, it is difficult to estimate these costs reliably, and it would be of dubious validity for a federal agency to attempt to define the "correct" allocation of costs even if we could.

More important than the difficulty of measuring net revenue transfers accurately, the magnitude of CRS generated net revenue transfers may not provide a useful measure of these systems' effects on competition among airlines. CRSs undoubtedly provide their owners with competitive advantages over other carriers, especially those without CRSs. Non-vendor airlines, however, may enjoy other competitive advantages. Precisely how these advantages interact will also depend on the particular characteristics of the individual local markets in which the vendor airlines compete as both vendors and airlines. In these circumstances, an estimate of CRS generated net revenue transfers standing alone would not be a particularly useful indicator of how CRSs affect airline competition.

QUESTION 6: Various airlines, travel agent groups, and others have made in recent months suggestions to DOT with respect to regulatory actions which they believe should be taken to reduce the dominant vendors' market power. Would you please list for us without necessarily identifying the source, what specific suggestions were made for DOT consideration. Did your Department consider each of these proposals? May we have DOT's evaluation of the proposals made to it? Were there any other proposals internally developed which were considered? If so, what was DOT's evaluation of each of those?

ANSWER: A wide range of proposals for remedial action have been presented to the Department, and the Department's staff have discussed additional remedial actions. A travel agent group has filed two petitions asking us to modify the rules governing travel agent contracts. In the first, the travel agents proposed a rule requiring standard contract terms to correct practices that they perceive enhance the vendors' market power and practices they consider to be abuses of market power. The second petition focused primarily on practices allegedly designed to enhance market power. The travel agents have asked the Department to limit CRS contract terms to three years (as opposed to five under the current rules); prohibit liquidated damages, minimum use, and rollover clauses; and prohibit parity requirements. A smaller vendor has filed a petition dealing with the same alleged abuses. In addition, five pending enforcement complaints raise allegations concerning vendors' practices in this area. The Department is reviewing all of these petitions and complaints.

A smaller vendor has proposed in informal discussions that we adopt rules establishing minimum standards of functionality for CRSs. This vendor contends that the large vendors continue to make it easier for agents to process bookings for their airline affiliates' services than for services of other carriers and that this practice is a major cause of the halo effect. This vendor also advocates further regulation of subscriber contracts along the lines outlined above; it also requested that we prevent vendors from offering travel agents CRS incentives that are linked to air transportation, such as free tickets or free airline club memberships that the agent can give to his or her customers.

A group of CRS-participating airlines has suggested rules that would require vendors to allow their subscribers to switch between the data bases of competing systems using a single set of equipment, arguing that if agents could do this, it would be easier for airlines to persuade agents to book their flights through a CRS that charges lower booking fees. According to these carriers, this action might introduce competitive pressures on the level of booking fees. In addition, some parties have advocated binding arbitration that would be available to travel agents and participating carriers who believed that vendors were violating some standard of equity.

DOT's staff also considered a number of options, including divestitures; some form of rate regulation, such as the imposition of a "reasonable" fee requirement, the so-called "zero booking fee" regulation, or a variation, a booking fee cap; and granting antitrust immunity to participating carriers so that they could negotiate with each vendor as a group.

Each of the "remedies" outlined above has its problems. The first problem, common to all of them, is that it is unclear whether government intervention is necessary or justified. There can be little doubt that CRSs provide their owners with competitive advantages. As we have pointed out elsewhere, however, non-vendors may be able to counter CRSs with other competitive advantages. In these circumstances, we are not prepared to say that the competitive advantages of CRS ownership, whatever they may be, require further regulation of CRSs under section 411 of the Federal Aviation Act.

A second generic problem with the various remedies is the dynamic nature of the industry. Competition among vendors for subscribers continues to spur rapid technological development and has apparently produced vigorous conversion activity. The ownership structure of the industry is transforming itself as well, with a number of airlines purchasing interests in CRSs that were previously marketing arms of a single airline. In trying to hit the "moving target" of purportedly unfair CRS practices, regulatory intervention could kill healthy development instead.

In addition, any regulatory action would involve costs of one kind or another. For example, "minimum" standards of functionality could require a cumbersome oversight and enforcement mechanism and might end in limiting new development to a lowest common denominator. Administration of a reasonable fee requirement would impose on vendors and the government the costs of prosecuting rate proceedings, and the requirement could produce substantial distortions in the CRS market. Binding arbitration of disputes over such matters as the reasonableness of fees would produce the same kinds of distortions. A "zero fee" requirement could substantially disrupt the travel agent industry by requiring a fundamental change in the relationship between the agents and their airline principals. Divestiture could eliminate many economies gained from the sharing of facilities and personnel between vendors' internal and external reservation systems and might have no effect on the level of fees. The mandatory "switch" proposed by several CRS participating airlines might impede the forms of development, could present difficult legal problems, and might not have the intended effect of lowering fees. Finally, antitrust immunity is a dangerous remedy that could have unforeseen anticompetitive consequences, especially given that a number of the participating airlines who would be given immunity are also vendors. Since it is not clear, based on the report, that the competitive advantages of CRS ownership require additional regulatory action, there is a substantial risk that the costs of such action would outweigh any benefits.

The pending rulemaking petitions squarely raise the question of whether there is a need for additional CRS regulation, and we will consider that issue carefully before acting on the petitions.

QUESTION 7: If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal, or proposals, if any, would you regard as most effective and appropriate for adoption by DOT?

ANSWER: The Department has sufficient statutory authority to regulate the CRS industry and to ensure that these systems are not used to restrict competition in the airline industry. It is also important to recognize that the Department has taken action to prevent CRSs from being used in an unfair manner. For example, the Department worked to eliminate "secondary screen" display bias. We also worked to get the CRS vendor airlines to eliminate rollover provisions in their agency contracts. Currently, we are reviewing several petitions and complaints to change key provisions in the contracts between vendor airlines and their travel agency subscribers.

At this stage in the evolution of the CRS industry, we believe it is appropriate to proceed cautiously before adopting any regulation that would reduce the vendors' incentives to upgrade or market their systems or would lead to higher costs for participating airlines or subscribers. For example, the regulation of CRS booking fees would involve substantial costs and could lead to inefficiencies. Such regulation would involve lengthy and complex proceedings, and would require ongoing reports and the monitoring of the vendors' costs and revenues. As our study demonstrates, determining vendor costs and revenues is an uncertain process, involving numerous arbitrary allocations and assumptions. In addition, vendors' costs vary substantially. If fees are set for each vendor, there will be multiple proceedings; there will also likely be different fees for each vendor, arbitrarily imposing advantages or handicaps in the market. As discussed in Question 6, other regulatory "solutions" to the CRS "problem" would also have undesirable consequences and would thus result in inefficiencies.

QUESTION 8: What is your position on whether minimum use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

If you believe that it does have such an effect, do you think that DOT should take action to clarify that Section 255.6 of DOT's regulations precludes the use of minimum use clauses?

ANSWER: For several reasons, minimum use clauses can reduce the number of subscribers with more than one system. By committing a subscriber to use its first CRS actively, minimum use clauses limit the volume of business available to be booked through a second system and thereby may make the costs of a second system exceed its expected benefits. Minimum use provisions also impose disincentives to use a second system. The principal disincentive is that failure to meet the monthly minimum is grounds for terminating the contract by the vendor and imposition of liquidated damages. Since an agent may not know for certain whether it has met its minimum until the end of the month, there is a strong incentive to make all bookings on one system.

Whether these disincentives to the use of a second system amount to a prohibition on the use of alternative systems, in violation of Part 255, or are an unfair method of competition, in violation of section 411 of the Act, are issues raised in several pending proceedings and, therefore, is a question the Department is actively pursuing. Three third party complaints that directly address the minimum use provisions have been filed by smaller vendors. One of the vendor complaints focuses almost exclusively on such clauses. The other two complaints, filed by another smaller vendor, view minimum use as a part of the overall strategy of the dominant vendors to retain their current agent base. The complaints allege that the other elements of that strategy include liquidated damages, rollover provisions, and architectural bias in displays and functionality. A fourth complaint (Docket 45593), from a travel agent, addresses a minimum use clause in a prospective supplemental vendors's offer. A fifth complaint from several travel agents alleges a campaign on the part of a vendor to monopolize a local market. The tying of commissions and other benefits to CRS use is alleged to be part of that campaign. There are three pending rulemaking petitions before the Department that urge specific prohibition of such provisions as part of a comprehensive revision of Part 255.

QUESTION 9: Has DOT addressed the question of what effect, if any, inhibition of conversion efforts resulting from restrictive contractual provisions has had on CRS competition or airline competition? If so, what conclusions have you reached?

On page 135 of the May 1988 CRS report, DOT suggests but does not resolve certain pertinent questions relative to whether the new restrictive subscriber contract clauses are unfair competitive practices and what the effect on air transportation competition might be if they were barred. For example, the Department states, "The question here is whether the benefits of these contracts (or particular provisions) are outweighed by a purpose or effect that unreasonably restrains competition." Obviously that is the question; what is the answer? The Department has the statutory responsibility to prevent "unfair methods of competition in air transportation or the sale thereof" (Section 411 of the Federal Aviation Act). Having raised the appropriate questions about CRS contracts, does the Department take the position it has no obligation to provide the answers? If not, what is the Department's position on whether these contracts contain elements which unreasonably restrain competition?

ANSWER: Again, this is a question being actively pursued on the basis of the pending rulemaking petitions and enforcement complaints referred to in Question 8. As the CRS study found, however, minimum use clauses, rollover provisions, and five-year contract terms, combined with liquidated damage clauses based on booking fees, may protect a vendor's existing subscriber base from competition from other vendors. But when a vendor sets its fees to subscribers in the expectation that the CRS installation will generate booking fee revenue, is it unreasonable for the vendor to take some actions to protect those expectations? Moreover, competition for subscribers appears to be vigorous even with these clauses in subscriber contracts. In short, the question of whether "the benefits of these contracts ... are outweighed by a purpose or effect that unreasonably restrains competition" cannot be readily answered. Nevertheless, the rulemaking petitions and the pending enforcement complaints raise that question, among others. The Department will be addressing such questions when it rules in these proceedings.

It should be noted, however, that any action the Department might take to "open up" travel agent CRS contracts will not necessarily improve airline competition. The CRS is a joint product being sold in two markets. A travel agent can realistically choose from among any of the five vendors, but airlines perceive that they must participate in all CRSs. Moreover, there is apparently no readily available means for participating air carriers to persuade agents to obtain or use a particular CRS because of the level of that CRS's booking fees. Therefore, still more vigorous competition for agents will not necessarily act as a restraint on booking fee levels.

The Department's study also suggests that CRS ownership may confer competitive advantages to the vendor in the form of the halo effect without regard to booking fee income in those markets where they have a high market share (although for reasons discussed in our response to Questions 1 and 5, it is extremely difficult to estimate such benefits precisely). It is not clear that opening up competition for travel agents would dissipate these advantages. Moreover, the smaller vendors would still have economic incentives to concentrate their CRS expansion efforts in those markets where they have an airline market presence. The public policy benefits of making it easier for vendors to attain CRS dominance at hubs where they have airline dominance are questionable.

QUESTION 10: In general, the DOT report contains a wealth of important information about CRSs and their impact on airline competition. Among the major points which emerge from the report are (1) the dominant CRS vendors have and exercise significant monopoly pricing power, reflected in the fact that they charge other airlines at least double what it costs to provide the service; (2) the dominant CRS vendors enjoy extraordinarily high profits from their CRS operations (internal rates of return estimated by DOT at 108.9 percent and 129.5 percent for APOLLO and SABRE, respectively), producing revenue transfers among airlines of $1-$2 billion per year; and (3) other airlines may be barred from making their own competitive responses (i.e., successfully marketing their own CRSs), and travel agents may be barred from freely choosing among CRSs, by a variety of agent-vendor contract clauses which may have an anticompetitive effect or purpose.

Obviously, these points raise major concerns about trends in the degree of competition among airlines, concerns which affect the interests of consumers, airlines, travel agents, and which ultimately threaten the viability of deregulation. Yet the Department, despite the wealth of information in its report, has chosen to draw no conclusions and has thus far chosen to take no action. Is that because the Department has concluded that no action is warranted, or does the Department have a plan of action, and, if so, what is it?

ANSWER: The Department's CRS report was intended to gather facts, assess the state of competition in the CRS industry, and evaluate the influence of CRSs on competition among air carriers; it was not intended to be a policy document or to serve directly as a justification for further CRS regulations.

The Department has taken action to eliminate certain vendor business practices that were contrary to the spirit and letter of our CRS rules. For example, the Department took enforcement action against a vendor that introduced biased fare displays and was instrumental in getting vendors to eliminate secondary screen bias and to remove rollover provisions in their subscriber contracts. We are now reviewing petitions and enforcement complaints from the American Society of Travel Agents, individual travel agents, and smaller vendors that ask the Department to modify several of the key features in the contracts between CRS vendors and their subscribers.

It is also important to recognize that there are a number of very healthy developments taking place in the CRS industry. The industry is continuing to undergo rapid technological change, spurred in part by intense competition for travel agency business. The industry is also becoming more competitive and responsive to the needs of its subscribers. For example, according to a recent survey (Travel Weekly, July 29), more than 90 percent of all agents are satisfied with the CRS they have chosen. Moreover, the smaller systems are expanding rapidly. In fact, according to the same survey, more than one in ten agency locations has switched primary reservation systems in the past two years.

Other promising developments are taking place as well. United's recent sale of 50 percent interest in the APOLLO system to a group of domestic and foreign airlines highlights a recent trend toward the separation of airline and CRS operation. Also, the CRS industry is becoming more "international," with foreign and domestic air carriers combining in consortia to provide CRS services in Europe and Asia.

Because of the Department of Justice's (DOJ's) expertise in analyzing complex competitive issues, the Department forwarded a copy of its CRS report to DOJ for its review. The Department would, of course, consider any comments DOJ submitted regarding the report or on supplemental regulations the Department should adopt to govern the CRS industry. As always, the Department will consider petitions from interested parties on what remedial actions, if any, we should take vis-a-vis the CRS industry.

QUESTION 11: In the last year, has DOT had any discussions with the Office of Management and Budget on rulemaking to deal with CRS problems? If so, what are OMB's views on the desirability of such rulemaking?

ANSWER: The Office of Management and Budget was aware that the Department was preparing a study on the CRS industry. Our study was designed to gather facts about the CRS industry and to analyze the data provided to us by the vendors; it was not designed to serve directly as a justification for further CRS regulations. The OMB did not place any restrictions on our study. Nor has OMB attempted to influence the Department's thinking on the desirability of a CRS-related rulemaking proceeding.

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August 11, 1988

Honorable Charles W. Bowsher
Comptroller General of the United States
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Bowsher:

I am writing to request the General Accounting Office to testify at a hearing which the Aviation Subcommittee will hold on September 14 on the Department of Transportation's recent "Study on Airline Computer Reservation Systems" and on further actions which are neded to follow up on that study.

GAO has done important work in this area and it was your study "Airline Competition -- Impact of Computerized Reservation Systems" in May 1986 which led to our recommendation that the Secretary of Transportation study the effects the booking fees and incremental revenues received by the dominant CRS vendors are having on competition between airlines. In May 1988 the Department of Transportation completed its report. The report indicates that there are grounds for serious concerns about the anti-competitive features of the CRS industry. Some of the disturbing findings in the DOT report are as follows:

(1) Market Shares. The DOT study concludes that the CRS systems marketed by two airlines, United and American, continue to dominate the industry. The DOT study shows that in the year studied, 1986, American's and United's CRSs together accounted for 75.23% of all revenues handled by automated travel agents.

(2) Difficulties of New Competition. The DOT report concludes that there are important barriers to new entry in the CRS industry by other airlines, particularly "the substantial sunk costs

that would have to be incurred to develop a competitive CRS, the economies of scale and scope that the largest vendors appear to enjoy, and the time and expense it would take to acquire a critical mass of subscribers."

With respect to potential entrants which are not airlines, the DOT report concludes that "the fact that CRSs evolve from airline internal reservation systems and the benefits that airlines derive from the CRS make it unlikely that a non-airline will attempt to enter the CRS market in the future."

(3) The Booking Fees Charged by United and American to Other Airlines Exceed American's and United's Costs. United and American charge other airlines a fee of $1.85 for every booking made on United or American's CRS. The DOT report concludes that under DOT's best estimate, United and American's charges to other air carriers are "roughly twice (United and American's) average unit cost per passenger segment booked."

(4) Lack of Influence of Other Airlines Over Booking Fees. The report concluded that "participating airlines' ability to influence the level of booking fees charged by the vendors appears to be limited because non-CRS owning airlines have no mechanism to influence their passengers to patronize travel agents equipped with CRSs that charge lower booking fees, or to persuade travel agents to equip themselves with such systems."

(5) Transfer of Revenues From Other Carriers to United and American. In view of the fact that 75% of all CRS tickets (measured by revenues) are written on United and American's CRS, a significant portion of the $450-600 million a year these two carriers receive in booking fees represents a net transfer of industry revenues from other carriers to United and American.

The DOT report also concludes that CRS owners continue to receive incremental revenues, that is, excess revenues obtained because of the tendency of travel agents to book on the airline owning their CRS. Again, because American and United have such a large share of the CRS market they obtain substantially more incremental revenues than the other carriers owning CRSs.

The DOT report does not estimate the total net revenues which are being transferred to American and United each year as a result of excessive booking fees and incremental revenues. The data in the report suggest that these amounts may total more than a billion dollars a year.

(6) United's and American's CRSs Are Highly Profitable. The DOT report found that United and American are receiving a 60-100% return on investment using conventional accounting metnodology. If economic methods of measuring rate of return are used, United and American's rate of return may be even higher.

Although the DOT report is an excellent analysis of complex data and includes many useful findings of facts, it is regrettable that the report stops short of reaching conclusions on the ultimate issues involved. The report does not reach conclusions on how much revenue is being transferred to American and United from the rest of the industry; on what effects these revenue transfers have had and will have on airline competition; or whether the revenue transfers and other anti-competitive aspects of the CRS industry were an important cause of the wave of airline mergers, the disappearance of the new entrant carriers, and the lack of any recent new entry. Nor does the report reach any conclusions about whether various provisions in contracts between CRS owners and travel agents are unfair competitive practices which unreasonably restrain competition between CRS owners.

In addition, we are concerned that neither the DOT report nor subsequent statements by the Department give any indication as to whether the Department feels that any regulatory or legislative action is needed to deal with the problems disclosed in the report.

To deal with these problems, the Aviation Subcommittee will be holding hearings on September 14 on the DOT report and on the need for further action by the government. We believe that the General Accounting Office could make an important contribution to these hearings and we would welcome your testimony. To ensure that the hearings focus on the issues of particular concern to the Committee, we are asking the witnesses to prepare written answers to a series of questions, with the answers to be submitted to the Committee one week before the hearing. The questions to which we would like you to respond are enclosed as are the questions we have submitted to the Department of Transportation. The hearing will consider your written responses and we would, of course, welcome any additional comments you would care to make in written and oral testimony submitted in accordance with the Committee's normal procedure.

To arrange for your testimony, please contact the Committee's Aviation staff at 225-9161. Thank you for your cooperation.

Sincerely,

Norman Y. Mineta

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

Enclosures

QUESTIONS FOR GENERAL ACCOUNTING OFFICE

1. GAO's Report to Congress on "Airline Competition -- Impact of Computerized Reservation Systems," May 1966, recommended that the Secretary of Transportation study the persistence of incremental revenues and the effect of booking fees on competition, and take additional action, if warranted by the results, to enforce compliance with or strengthen CRS rules.

Do you believe that the May 1988 DOT Report is an adequate response to your questions about incremental revenues and booking fees?

2. On the basis of what appears in the DOT Report is there any sound reason why DOT should not have made an affirmative recommendation for action to stem the revenue transfers from the rest of the industry to the dominant CRS vendors?

3. To the best of your ability and expertise can we have GAO's response to the substance of the following questions directed to Secretary Burnley?

a. Please furnish the Committee with GAO's best halo estimate of the net revenue transfer (booking fees and halo revenue) to AA/UA from the rest of the industry based upon DOT's May 1988 CRS Report.

   1) For the period prior to November, 1984.

   2) For the period subsequent to November, 1984 through December 31, 1987.

b. Do you believe that revenue transfers of this magnitude would have any effect on airline competition?

   1) on scheduling

2) on fares

3) on equipment decisions

4) on decisions on cities and markets to be served

c. Given the magnitude of those revenue transfers, what role do you believe that CRS ownership plays in the post-CAB sunset wave of airline mergers?

d. The early years of deregulation were characterized by many new competitors, some of which grew dramatically. In recent years, however, there has been little new entry, and most of the existing new entrants have ceased to exist. Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

e. Assume you had the same powers as DOT. If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal or proposals, if any, would you regard as most effective and appropriate for consideration by DOT?

f. What is your position on whether minimum use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

4. The DOT Report in evaluating the extent to which incremental revenues may be taken into account as monopoly rents suggests a need to consider costs incurred by the vendor in carrying that traffic. On the other hand, other carriers from which the traffic is being diverted argue that the vendors' cost of carriage is irrelevant; the traffic is being taken from them and they are losing all the revenue with very little opportunity to save capacity costs. In fact, they argue that were they to reduce capacity, it would exacerbate their traffic loses.

May we have GAO's view on proper resolution of these issues?

5. Does GAO have any views on DOT's costing methodology for ascertaining the proper allocation of joint costs among the vendors own services, other carriers, and subscribers?

6. Does GAO have any views on DOT's methodology for determining halo incremental revenues?

7. Are there any other comments on the DOT Report, or the CRS issues which GAO cares to make?

QUESTIONS FOR DEPARTMENT OF TRANSPORTATION

1. Please furnish the Committee with DOT's best estimate of the net revenue transfer to American Airlines and United Airlines from the rest of the industry based upon DOT's May 1988 CRS report.

   a) For the period prior to November 1984.

   b) For the period subsequent to November 1984 through December 31, 1987.

2. Do you believe that revenue transfers of this magnitude would have any effect on airline competition?

   -- on scheduling

   -- on fares

   -- on equipment decisions

   -- on decisions on cities and markets to be served

3. Given the magnitude of those revenue transfers, what role do you believe that CRS ownership played in the post-CAB sunset wave of airline mergers?

4. The early years of deregulation were characterized by many new competitors, some of which grew quite dramatically. In recent years, however, there has been little new entry, and most of the existing new entrants have ceased to exist. Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

5. It appears from the data in the DOT report (see especially Tables 4.2 and 4.12) that the dominance of the two largest CRS vendors is generating a revenue transfer from other airlines of $1-2 billion per year ($1 billion if the vendors' estimate of "halo" is correct, $2 billion if the Department's estimate of "halo" is correct). Is it the position of the Department that transfers of that order of magnitude have no adverse impact on airline competition? Why did the report fail to aggregrate the various calculations that it made into a single estimate of the revenue transfer? Why did it fail to appraise the significance of those transfers for airline competition and the public interest?

6. Various airlines, travel agent groups, and others have made in recent months suggestions to DOT with respect to regulatory actions which they believe should be taken to reduce the dominant vendors' market power. Would you please list for us without necessarily identifying the source, what specific suggestions were made for DOT consideration. Did your Department consider each of these proposals? May we have DOT's evaluation of the proposals made to it? Were there any other proposals internally developed which were considered? If so, what was DOT's evaluation of each of those?

. 7. If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal or proposals, if any, would you regard as most effective and appropriate for adoption by DOT?

8. What is your position on whether minimum use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

If you believe that it does have such an effect, do you think that DOT should take action to clarify that Section 255.6(b) of DOT's regulations precludes the use of minimum use clauses?

9. Has DOT addressed the question of what effect, if any, inhibition of conversion efforts resulting from restrictive contractual provisions has had on CRS competition or airline competition? If so, what conclusions have you reached?

On page 135 of the May 1988 CRS report, DOT suggests but does not resolve certain pertinent questions relative to whether the new restrictive subscriber contract clauses are unfair competitive practices and what the effect on air transportation competition might be if they were barred. For example, the Department states, "The question here is whether the benefits of these contracts (or particular provisions) are outweighed by a purpose or effect that unreasonably

restrains competition." Obviously that is the question; what is the answer? The Department has the statutory responsibility to prevent "unfair methods of competition in air transportation or the sale thereof" (Section 411 of the Federal Aviation Act). Having raised the appropriate questions about CRS contracts, does the Department take the position it has no obligation to provide the answers? If not, what is the Department's position on whether these contracts contain elements which unreasonably restrain competition?

10. In general, the DOT report contains a wealth of important information about CRSs and their impact on airline competition. Among the major points which emerge from the report are:

- The dominant CRS vendors have and exercise significant monopoly pricing power, reflected in the fact that they charge other airlines at least double what it costs to provide the service.
- The dominant CRS vendors enjoy extraordinarily high profits from their CRS operations (Internal Rates of Return estimated by DOT at 108.9% and 129.5% for Apollo and Sabre respectively), producing revenue transfers among airlines of $1-2 billion per year.

- Other airlines may be barred from making their own competitive responses (i.e. successfully marketing their own CRSs), and travel agents may be barred from freely choosing among CRSs, by a variety of agent-vendor contract clauses which may have an anti-competitive effect or purpose.

Obviously, these points raise major concerns about trends in the degree of competition among airlines, concerns which affect the interests of consumers, airlines, travel agents, and which ultimately threaten the viability of deregulation. Yet the Department, despite the wealth of information in its report, has chosen to draw no conclusions and has thus far chosen to take no action. Is that because the Department has concluded that no action is warranted; or does the Department have a plan of action and; if so, what is it?

11. In the last year, Has DOT had any discussions with the Office of Management and Budget on rulemaking to deal with CRS problems? If so, what are OMB's views on the desirability of such rulemaking?

GAO
United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

September 13, 1988

The Honorable Norman Y. Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works
and Transportation
House of Representatives

Dear Mr. Chairman:

On August 11, 1988, you asked that we testify before your Subcommittee on the Department of Transportation's recent study on airline computerized reservation systems (CRS). In your request for testimony you asked us to respond in writing to seven questions. Our responses are enclosed.

As our responses indicate, we believe that DOT's report is an excellent piece of analysis that provides important information about the extent of incremental revenues in the CRS industry and the amount by which booking fees exceed costs. While we recognize that there are some valid criticisms that can be made about some aspects of DOT's methodology, we do not believe that these criticisms obviate the report's overall findings--that competitive problems persist in the CRS industry. We believe that DOT needs to consider and adopt an approach to address these problems. In response to your questions, we have identified alternative approaches to address these problems and have reviewed the advantages and disadvantages of these options.

We look forward to testifying. If you should have any questions about our position, please contact me at 366-1743.

Sincerely yours,

Victor S. Rezendes
Associate Director

Enclosure

RESPONSES TO QUESTIONS FROM THE CHAIRMAN SUBCOMMITTEE ON AVIATION HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

1. Q: Do you believe that the 1988 DOT Report is an adequate response to your questions about incremental revenues and booking fees?

A: Our 1986 report raised three key issues: (1) the extent of incremental revenues, (2) whether booking fees significantly exceed costs, and (3) whether further action is needed. The DOT report addresses only the first two of these issues. While valid criticisms have been made of the DOT report (which we shall discuss in more detail in our responses to subsequent questions), we believe that the report is, on the whole, an excellent piece of analysis, and represents an adequate response to our first two questions on incremental revenues and booking fees.

2. Q: On the basis of what appears in the DOT Report is there any sound reason why DOT should not have made an affirmative recommendation for action to stem the revenue transfers from the rest of the industry to the dominant CRS vendors?

A: Since DOT is the agency responsible for taking action, the appropriate forum in which DOT would recommend action is in a notice of proposed rulemaking. We believe that there is sufficient evidence in the DOT report to indicate that a problem exists and that a rulemaking should be opened.

3a. Q: Please furnish the Committee with GAO's best halo estimate of the net revenue transfer (booking fees and halo revenue) to AA/UA [American Airlines/United Airlines] from the rest of the industry based upon DOT's May 1988 CRS report.

1. **For the period prior to November, 1984.**
2. **For the period subsequent to November, 1984, through December 31, 1987.**

A: There are insufficient data in the DOT report to answer this question exactly as asked. No data are available in the report for 1987. Also, the data for other years are annual, rather than monthly, so it is not possible, for 1984, to distinguish between the period prior to November and the period subsequent to November. The report contains data on the receipts of American Airlines and United Airlines from other carriers (including each other), but does not indicate booking fees paid by American and United to each other or to other vendors. It is therefore not possible to determine the receipts of American and

United net of their booking fee payments to other vendors. Nor is it possible, for example, to determine the gross revenues received by American from carriers other than United. Also, the net revenue transfer from booking fees (i.e., net of booking costs) can only be calculated for 1986, because it is only for that year that DOT calculates booking costs. As shown in Table I.1, we can present data from the report on the net booking fee and incremental revenues received by each vendor from all other airlines in 1986. Net booking fees are net of the cost of providing the booking, assuming DOT's "most likely" cost allocation, and including in booking costs a reasonable profit. Net incremental revenues are assumed to be 80 percent of gross incremental revenues.

Table I.1: CRS Net Revenue Transfer, 1986

Vendor	Revenue transfer (millions)
SABRE	$342.9
Apollo	302.6
System One	83.6
PARS	67.3
DATAS II	45.6

3b. Q: Do you believe that revenue transfers of this magnitude would have any effect on airline competition

1. **on scheduling,**
2. **on fares,**
3. **on equipment decisions, or**
4. **on decisions on cities and markets to be served?**

A: We believe that transfers of this magnitude would be likely to affect all these elements of airline competition. The size of the effect would depend on how large the transfer was in individual markets. If one carrier's costs are raised relative to its competitor's, this would affect its decisions on whether to enter a particular market, on how many flights to schedule in that market, on what fares it could afford to charge in that market, and on the capacity of the equipment it would use in that market.

3c. Q: Given the magnitude of those revenue transfers, what role do you believe that CRS ownership plays in the post-CAB sunset wave of airline mergers?

A: We are uncertain how significant this role was. Two of the carriers involved in the merger wave, Texas Air and Northwest, have cited their lack of ownership of a CRS as a factor in their decisions to merge with (respectively) Eastern and Republic. Texas Air acquired a CRS through its acquisition of Eastern, and Northwest acquired what it viewed as the necessary size to defend itself from the market power of CRS owners. The desire to acquire an ownership share in a CRS appears to be a strong one, as all the major domestic airlines except Pan Am have now either acquired such a share or been acquired by an airline with such a share.

3d. Q: Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

A: It seems likely, based on the data presented in the DOT report on the size of revenue transfers, and on our analysis of the likely competitive effects of these transfers, that the market power of CRS vendors does inhibit new entry and threaten the ability of new entrants to survive. The size of this impact is uncertain. We are currently undertaking further analysis of this question at the request of Chairman Rodino of the House Judiciary Committee.

3e. Q: If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal or proposals, if any, would you regard as most effective and appropriate for consideration by DOT?

A: We are not prepared at this time to recommend any particular remedy for the anticompetitive problems of the CRS market. We are prepared, however, to review the advantages and disadvantages of the different remedy options to assist in your consideration of them.

There are four major competitive problems that have been identified in the CRS market:

1. Booking fees that significantly exceed costs, which create distortions in the airline marketplace by raising the costs of air travel above the true cost.

2. Incremental revenues, which transfer revenues from non-CRS vendor airlines to CRS vendor airlines, and which limit competition in the airline industry by giving CRS-owning airlines an artificial competitive advantage.

3. Revenue transfers from non-CRS-owning airlines to CRS vendors caused both by booking fees which exceed costs and incremental revenues. These transfers also occur, to a lesser extent, from minor CRS vendor airlines, whose booking fee outlays exceed their booking fee revenues, to the two major vendors. To the extent that they exceed the costs of the services provided, these transfers reduce competition in the industry by artificially imposing a cost penalty on some carriers and subsidizing others.

Such transfers could force non-vendors or minor vendors to exit (or avoid entering) markets where they could otherwise have been competitive.

4. Contract provisions that discourage travel agents from switching vendors. Such provisions directly reduce competition in the market for servicing travel agents, and also perpetuate the revenue transfers to major CRS vendors cited above, by making it more difficult for minor CRS vendors to sign up enough travel agents to prevent a net outlay of booking fees to the major vendors.

We emphasize that there are several competitive problems in the CRS market, and no one remedy addresses all of them. In fact, a remedy for one problem may exacerbate another. Thus, multiple remedies may be needed. The following discusses the complex issues involved.

THE PROBLEM OF REVENUE TRANSFERS BETWEEN AIRLINES

The problem of revenue transfers between airlines can be addressed either by divestiture (requiring airline owners of CRSs to sell them to a non-airline owner) or by establishing an industry-wide airline consortium to operate a common industry system.

Divestiture

Divestiture would, by severing the link between an airline and a CRS, eliminate incremental revenues as well as transfers from one airline to another. Divestiture would not address the problem of high booking fees, because an independent CRS owner would have much the same market power as a CRS-owning airline and would be able to extract high booking fees from non-CRS-owning airlines. Divestiture also would not address the problem of travel agent contract terms which discourage switching from one vendor to another.

Divestiture could have the effect of raising booking fees. Since the owner would no longer have the opportunity to earn incremental revenues from the airline business, the owner might decide to increase booking fees to compensate for the shortfall. Without the potential for incremental revenues, the number of CRSs could also be reduced, increasing the CRS market's concentration. This could injure competition, and in particular might slow down the rate of technological progress in the industry, which some observers attribute to vigorous technical rivalry between vendors. On the other hand, a reduction in the number of CRSs in use might reduce costs because of the economies of scale in operating a system.

Divestiture would probably lead to the development of separate internal reservation systems by the major CRS-owning airlines. The airlines that own CRSs do not maintain separate internal reservation systems; the CRS is their internal reservation system. If they were required to divest themselves of the CRS (and hence of their internal reservation system as well), they would probably feel forced to develop a new internal reservation system to replace the CRS. While some small airlines do not have any internal reservation system, we believe it is unlikely that any major airline would tolerate the loss of control inherent in having its reservation system totally in the control of an outside firm.

Developing a new internal reservation system would certainly increase the overall cost of the airline reservation system because it would involve some duplication. It might also inhibit the transfer of data from the airlines to the CRSs. Currently, the airline which owns a CRS has its data on flight schedules and seat availability automatically loaded into the CRS. If the CRS were separately owned, the data would have to be transmitted to the CRS and separately loaded. Some CRS vendors believe that this would reduce the timeliness and quality of the data in the CRS.

A Common Industry System

Ever since CRSs were first discussed in the late 1960s, there have been proposals to establish a common airline-owned nonprofit system for all travel agents and all airlines to use. These proposals have always failed because of disagreements between airlines on how to establish the system, and because of uncertainty about whether the system would enjoy antitrust immunity. It is apparent that such a system can only be established with government intervention, which is necessary both to compel the existing systems to be consolidated into a common system and to provide the assurance of antitrust immunity for the consolidation.

A common system would have many of the same advantages as divestiture. Since all airlines would jointly control the system, incremental revenues and inter-airline transfers would no longer be a problem. And since the system would operate on a nonprofit basis, high booking fees would also be eliminated.

The major objection to a common system is that there would be no rivalry between competing systems. Travel agents and vendors believe that rivalry between competing systems has led to technological improvements in the systems. Agents also feel that they get better service when systems are competing with one another. It is possible that some elements of competition could be incorporated into a common system. For example, independent hardware and software vendors might be able to supply individual travel agents with components of the system, as long as those components were certified as satisfying the specifications of the system.

RESTRICTIONS ON BOOKING FEES

There are various ways in which booking fees could be limited. All have the effect of limiting or reducing high booking fees, and all, with varying degrees of success, address the problem of inter-airline revenue transfers due to high booking fees. None of them addresses the problem of incremental revenues, and none affects contract terms between vendors and agents. By forcing vendors to generate more of their revenues from agent subscription fees, all of these restrictions on booking fees would put added pressure on agents to shop for the best financial deal from vendors. Agents would probably pass the cost of higher subscription fees back to the airlines in the form of higher commissions on ticket sales. However, since CRS vendors have less market power in setting subscription fees than in setting booking fees, it is likely that the increase in subscription fees would be less than the reduction in booking fees, so that non-vendor airlines (and most airline passengers) would be better off. This would be particularly true if contract terms between the vendors and the travel agents were restricted to give the agents more bargaining power over the vendors.

One approach to limiting these revenues to reasonable levels would be to prohibit booking fees entirely, thus forcing the CRS vendors to derive their revenues entirely from the travel agents rather than from the airlines with whom they compete.

Alternatively, instead of requiring that booking fees be reduced to zero, DOT could require that booking fees be reduced to a level approximately equal to the costs of providing the booking, as estimated in DOT's recent report. Under DOT's most likely allocation of joint costs, it estimated that booking costs varied from $0.75 to $1.74. Under this approach, then, booking fees would be reduced from $1.85 to a level somewhere in this range. This approach is less drastic than cutting booking fees to zero.

The disadvantage of this approach is that it requires administrative price regulation, which would involve a process of allocating costs between servicing travel agents and making bookings, estimating booking costs and travel agent service costs, and holding hearings to consider requests for fee increases. This, of course, is just the sort of rate-setting process that the Congress sought to avoid by deregulating the airlines.

A third approach would be simply to cap booking fees at their present level. This would allow the vendors to continue to receive the high booking fees which they now receive, but would not allow them to take further advantage of their market power in the future. This approach has the advantage of simplicity, but results in an arbitrarily chosen maximum booking fee.

RESTRICTIONS ON COMPETITION IN THE TRAVEL AGENT SUBSCRIPTION MARKET

The market between the travel agents and the CRS vendors is more competitive than the market between the CRS vendors and the other airlines. A travel agent can choose between five different CRS vendors, but the agent's effective freedom of choice is limited by several factors.

Contract Length

First, the standard contract in the industry is for 5 years, the maximum permitted by the DOT rules. Minimum use clauses establish an expectation on the part of the vendor of receiving a stream of booking fees over the life of the contract. This expectation would form the basis of a damages suit if the agent breached the contract. Such provisions make it costly for an agent to break a contract significantly before the 5 years have expired. Some CRS vendors have offered to compensate agents for the cost of breaking these contracts, but the great expense of paying the resulting damages makes it unlikely that competing CRS vendors will make such offers except in selected markets. In the absence of such an offer, an agent in the middle of a 5-year contract, then, has little practical choice about which vendor to use, no matter how attractive a system a competing vendor might offer.

The American Society of Travel Agents (ASTA), as well as the smaller CRS vendors, argue that there is no business necessity for contracts to be as long as 5 years. The CAB originally allowed contracts of up to 5 years to allow agents to obtain the full benefit of investment tax credits. Since the CAB rulemaking in 1984, however, the investment tax credit has been repealed. The two largest CRS vendors argue that the vendor must have a 5-year contract to amortize equipment, installation, and training costs. However, they do not indicate why equipment must be amortized over the life of a single contract. Such equipment could conceivably be pulled from one travel agent's office at the end of a short-term contract and re-used in another's. Installation and training costs can be charged to the agent separately, giving the agent an incentive not to change vendors frequently. Vendors also state that they need long contracts to generate sufficient revenues from their agents because the subscription fees they charge the agents are so low. Vendors could compensate for shorter contracts by charging higher prices to agents.

One option, then, would be for DOT to amend its rules to reduce the maximum length of a travel agent's CRS subscription contract to a shorter period. ASTA has suggested reducing the maximum contract to 3 years. ASTA noted that, prior to the issuance of the CAB rule in 1984, the standard contract was for 7 years. The CAB rule reduced that term by 2 years, and ASTA suggests that a further 2-year reduction would now be appropriate. ASTA does not, however, offer any specific rationale for a 3-year term. The European Civil Aviation Conference (ECAC) has also recommended 3 years to its member states as the maximum contract term for CRSs in Europe. A separate proposal by the European Economic Community (EEC) would allow an agent to terminate a contract without penalty on 3 months notice.

Minimum-Use Clauses

One factor which could reduce the level of market power exercised by airline-owning CRSs over travel agents would be the prohibition of minimum-use clauses. SABRE and Apollo both have "minimum use" clauses in their contracts which require the agent to make at least 50 percent (or, in the case of SABRE, 75 percent) of its bookings on that CRS (based on bookings during the first 6 to 12 months of the contract). These clauses are intended to guarantee to the vendors a stream of income from the airlines in the form of booking fees. The agent is not responsible for payments of the booking fees during the contract's life. However, if the agent breaches the contract, he or she is responsible for the booking fees that the vendor would have received. Thus, the minimum-use clause causes the agent to become liable for damages that include not only the lost lease payments, but lost booking fees as well. In the absence of a minimum-use clause, agents could reduce their use of one system (while continuing to pay the subscription fee for the remainder of the contract term) and start using a second system. This would allow the agent to switch systems without incurring damages. It is not certain how effective the elimination of minimum-use clauses would be, since it is not clear how many agents would be prepared to have two sets of equipment in their offices.

Liquidated Damages

Travel agents have also been concerned about the burden of liquidated damages clauses. These clauses represent an agreement at the time the contract is signed regarding the damages that will be paid in the event the contract is breached. In CRS contracts these clauses generally require the agent to pay to the vendor a lump sum representing the stream of booking fees anticipated by the contract's minimum-use clause. They also require the agent to pay 80 to 100 percent of the remaining subscription fees owed on the contract, and in some cases any special bonuses paid to induce the agent to sign the contract. The heavy damages stipulated by these liquidated damages clauses could probably be imposed even if the clauses were not in the contract, because the lengthy contract term and the minimum-use clause in the contract create an expectation on the part of the vendor of a stream of revenues from the participating airlines. In the one case decided so far, the court upheld the reasonableness of damages based on this expected stream of income. Elimination of the liquidated damages clause would therefore have little effect on damages unless the contract term or minimum-use clause were modified as well.

One option would be for DOT to regulate the provisions of liquidated damages clauses. For example, booking fee revenues, which are generally the largest element in the liquidated damages formulae, could be excluded as a permissible form of damages. DOT could also, as ASTA has proposed, prohibit liquidated damages clauses in the contract. ASTA acknowledges that, under existing contract law, the CRS vendor is entitled to some damages if the contract is broken. They believe, however, that the existing provisions are excessively favorable to the vendor, and that the agent has insufficient bargaining power to resist these provisions. They therefore believe the damages should be determined by a court if the contract is broken. As noted above, however, this prohibition would only have a significant impact on reducing damages if it were combined (as ASTA has proposed) with a reduction in the maximum contract term and/or in the minimum use of the system that could be required.

Remaining Competitive Problems

Even with shorter contract periods, mitigation of liquidated damages clauses, and elimination of minimum-use clauses, CRS vendors would still have significant market power over travel agents. In our conversations with travel agents, we have found several ways in which airlines use their market power as carriers to enhance their market power as CRS vendors.

The development of the hub-and-spoke system has given air carriers substantial market power in particular metropolitan areas. In some metropolitan areas, a single carrier provides 80 percent of the enplanements, and it is common to have a single carrier with over half of the enplanements. Travel agents have told us that carriers who dominate hubs use their market power to pressure travel agents into subscribing to their CRS. Carriers provide a number of free discretionary services to travel agents, such as free tickets, free use of VIP lounges, and the service of "breaking seats" (that is, making seats available to a favored customer even after the flight is fully booked). These services are most valuable when provided by the dominant carrier in the metropolitan area served by a particular agent. An agent who is refused these services because of an unwillingness to subscribe to the dominant carrier's CRS may not be able to compete for passengers. It would probably be difficult to end all these vestiges of market power in the relationship between the carrier and the travel agent.

3f. Q: What is your position on whether minimum-use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

A: We believe that minimum-use clauses certainly discourage use of a second system. We do not believe that they absolutely preclude such use. Minimum-use clauses generally specify a base period, such as the first 6 months of the contract, and require that the travel agent maintain a level of bookings equal to a stated percentage of the bookings during the base period. Apollo requires that bookings be 50 percent of base period bookings; SABRE requires 75 percent. Such a requirement becomes less burdensome as the agent grows in size. However, the reduction in the burden could be small if the vendor succeeds in signing up the agent for a new contract well before the old one has expired. In general, then, the faster an agent grows, and the more the agent resists signing a new contract before the old one has expired, the more likely the effects of the minimum-use clause are to be mitigated. However, if the agent is growing rapidly, he will probably need new CRS equipment. The new equipment will come with new 5-year contracts, and the agent may be pressured by the vendor to sign new contracts for the old equipment as well. With the new 5-year contract comes a new base period with a higher level of bookings required.

4. Q: The DOT Report in evaluating the extent to which incremental revenues may be taken into account as monopoly rents suggests a need to consider costs incurred by the vendor in carrying that traffic. On the other hand, other carriers from which the traffic is being diverted argue that the vendors' cost of carriage is irrelevant; the traffic is being taken from them and they are losing all the revenue with very little opportunity to save capacity costs. In fact, they argue that were they to reduce capacity, it would exacerbate their traffic losses. May we have GAO's view on proper resolution of these issues?

A: As the DOT report indicates, incremental revenues caused by the diversion of passengers from other airlines to the CRS vendor airline only result in increased profits for the CRS vendor to the extent that costs rise by less than the increase in revenues. DOT points out that, for any given flight, the airlines assume that an extra passenger carried raises costs by only about 20 percent of the increase in revenues. This is the cost for food service, ticketing, baggage claims, etc., which vary directly with the number of passengers. Hence, 80 percent of that incremental gross revenue would become incremental net revenue (profit). This assumes, however, that the airplane is not full. If diversion of passengers increasingly causes an airline to fill its flights early, it is likely to respond either by raising its prices or by expanding capacity.

The airline would most likely raise its prices not by an actual fare increase, but by reducing the proportion of discount seats available on each flight. This would cause the average fare (or the "yield") to rise, without any individual fare rising. The capacity increase could take place either by using larger airplanes for the same number of flights, or by increasing the number of flights. Using a larger airplane would raise total costs; however, since the larger airplane would have lower costs per seat than the smaller airplane, the extra seats would be added at a lower cost per seat than the existing seats. Adding additional flights would also raise costs; however, by providing more convenient service, it would probably generate additional revenues as well.

Data on load factors of various airlines suggest that CRS vendors may have somewhat higher load factors than non-vendors, but that the percentage difference in load factor is less than the percentage increase in incremental revenues estimated either by the vendors themselves or by DOT. One study suggests that CRS vendors also have higher yields than non-CRS vendors. It therefore seems likely that CRS vendors respond to the increased traffic levels associated with incremental revenues partly by achieving higher load factors on their airplanes, partly by adding more flights and substituting larger planes, and partly by raising average fares. To the extent that the CRS vendor achieves higher load factors on existing flights, the increase in net revenues would tend to be about 80 percent of the increase in gross revenues. To the extent that the CRS vendor substituted larger planes or added additional flights, net revenues would be less than 80 percent, but more than the 0- to 5.6-percent average profit margin cited by DOT. To the extent that the incremental revenues were converted into higher yields as a result of cutting back on the availability of discount seats, and depending upon the elasticity of demand, the increased demand could be converted into increased revenue while still keeping the number of passengers flown (and hence costs) static. This could conceivably allow incremental net revenues in some cases to be 100 percent of gross revenues.

On the whole, then, given the variety of options available to the CRS vendor (and assuming that the vendor chooses the most profitable of these options), it seems likely that the proportion of net incremental revenues to gross incremental revenues is likely to be closer to 80 percent than 5.6 percent.

5. Q: Does GAO have any views on DOT's costing methodology for ascertaining the proper allocation of joint costs among the vendors own services, other carriers, and subscribers?

A: We believe that DOT's cost allocation methodology is reasonable. To the extent that we disagree, we would probably allocate more of the costs to subscriber services than DOT does in its "most likely" allocation.

DOT allocates all of CRS product development and central computer operations to reservation services, which are expected to be supported by booking fees paid by competing airlines. Much of product development expenses are associated with providing new services, such as direct access, total access, multi-access, etc., that are greatly in demand by travel agents. It therefore seems appropriate that a substantial portion of these costs be allocated to subscriber services. Similarly, central computer operations serve both airline participants and agent subscribers; there seems to be no clear rationale for allocating all these costs to reservation services.

DOT also allocates all "subscriber conversion, retention, and system use incentives" costs to reservation services. This appears inappropriate. These costs are designed to convert a travel agent from the use of one CRS to the use of another, or to keep an agent from switching to another CRS. The typical participating non-vendor airline doesn't care what CRS its flights are booked on, since it participates in all CRSs and pays equivalent booking fees to all. From the participating airline's point of view, then, expenditures to convert or retain agents are a waste of money. The participating airline has an interest in expanding the network of computerized travel agents, but not in reshuffling those that are already automated. Since these costs largely take the form of payments made to travel agents, it seems appropriate that these costs should be allocated to subscriber services. If these changes in the cost allocation assumptions were made, booking fees as a percentage of booking costs would rise from 192 percent to 294 percent for Apollo and from 233 percent to 383 percent for SABRE.

6. Q: Does GAO have any views on DOT's methodology for determining halo incremental revenues?

A: In general, we thought DOT's methodology was sound. We have discussed the Department's methodology with CRS vendors and ASTA. Some of those we talked with suggested alternative specifications for the model, or alternative data specifications. In most cases, while a case can be made for an alternative specification of the model, the specification chosen by DOT does not result in any apparent bias in the estimates, so we have no reason to believe that a change in the specification of the model would change the results.

However, there are a few exceptions. DOT used "departures" as a proxy for the expected revenues of an airline in the absence of any bias due to being a CRS vendor. Representatives of SABRE have pointed out that a carrier like American, which owns SABRE, tends to have larger airplanes and fly them over longer routes than do smaller non-vendor airlines. As a result, American would tend to generate higher revenues per departure than a smaller airline, irrespective of any incremental revenues generated by being a CRS vendor. By using departures, the DOT methodology probably tends to overstate the size of American's incremental revenues. Data on available seat miles, if available, might be better, though the long-haul, high-density routes served by major carriers may generate lower revenues per available seat mile than routes served by smaller carriers.

SABRE representatives also state that the data source DOT used for revenues (so-called "plated" revenues) overstates the revenues of large carriers like American. Plated revenues include revenues which are owed to another carrier which participates in an interline connecting flight. We agree with the validity of this point, but the resulting bias is likely to be small, because it results only when there are interline connecting flights, which are a small and declining portion of the airline market. In any case, there are no data sources available other than plated data, so DOT had no choice but to use these data.

In any case, it should be observed that these criticisms apply only to DOT's own econometric analysis of halo incremental revenues. DOT did not use its own estimates in calculating the profitability of CRSs. It used the CRS vendors' estimates of the size of incremental revenues. The vendors' own estimates were generally smaller than DOT's estimates, but were still large enough to produce the high estimates of internal rates of return calculated by DOT.

7. Q: Are there any other comments on the DOT Report, or the CRS issues which GAO cares to make?

A: Our additional comments can be found in our testimony.

GLENN M. ANDERSON, CALIFORNIA, CHAIRMAN

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Committee on Public Works and Transportation
One Hundredth Congress
U.S. House of Representatives
Room 2165, Rayburn House Office Building
Washington, DC 20515
Telephone: Area Code 202, 225-4472

August 11, 1988

Honorable Edwin Meese III
Attorney General of the United States
Department of Justice
Washington, D.C. 20530

Dear Mr. Attorney General:

I am writing to request the Department of Justice to testify at a hearing which the Aviation Subcommittee will hold on September 14 on the Department of Transportation's recent "Study on Airline Computer Reservation Systems" and on further actions which are needed to follow up on that study.

The Department of Justice has long been concerned with the possible anti-competitive effects of the domination by two large airlines of the computer reservation systems (CRS) used by travel agents. In December 1985, the Antitrust Division submitted a report to Congress on the airline CRS market. The Division found that there were possible abuses of market power by the dominant CRS vendors but concluded that at that time government action was premature, since the abuses of market power might be overcome as a result of new CRS competition or the CRS regulations which had been promulgated by the Civil Aeronautics Board. The May 1988 CRS report by DOT indicates that government action may now be appropriate since DOT's findings indicate that there continue to be grounds for serious concerns about the anti-competitive features of the CRS industry. Some of the disturbing findings in the DOT report are as follows:

(1) Market Shares. The DOT study concludes that the CRS systems marketed by two airlines, United and American, continue to dominate the industry. The DOT study shows that in the year studied, 1986, American's and United's CRSs together accounted for 75.23% of all revenues handled by automated travel agents.

(2) Difficulties of New Competition. The DOT report concludes that there are important barriers to new entry in the CRS industry by other airlines, particularly "the substantial sunk costs

that would have to be incurred to develop a competitive CRS, the economies of scale and scope that the largest vendors appear to enjoy, and the time and expense it would take to acquire a critical mass of subscribers."

With respect to potential entrants which are not airlines, the DOT report concludes that "the fact that CRSs evolve from airline internal reservation systems and the benefits that airlines derive from the CRS make it unlikely that a non-airline will attempt to enter the CRS market in the future."

(3) The Booking Fees Charged by United and American to Other Airlines Exceed American's and United's Costs. United and American charge other airlines a fee of $1.85 for every booking made on United or American's CRS. The DOT report concludes that under DOT's best estimate, United and American's charges to other air carriers are "roughly twice (United and American's) average unit cost per passenger segment booked."

(4) Lack of Influence of Other Airlines Over Booking Fees. The report concluded that "participating airlines' ability to influence the level of booking fees charged by the vendors appears to be limited because non-CRS owning airlines have no mechanism to influence their passengers to patronize travel agents equipped with CRSs that charge lower booking fees, or to persuade travel agents to equip themselves with such systems."

(5) Transfer of Revenues From Other Carriers to United and American. In view of the fact that 75% of all CRS tickets (measured by revenues) are written on United and American's CRS, a significant portion of the $450-600 million a year these two carriers receive in booking fees represents a net transfer of industry revenues from other carriers to United and American.

The DOT report also concludes that CRS owners continue to receive incremental revenues, that is, excess revenues obtained because of the tendency of travel agents to book on the airline owning their CRS. Again, because American and United have such a large share of the CRS market they obtain substantially more incremental revenues than the other carriers owning CRSs.

The DOT report does not estimate the total net revenues which are being transferred to American and United each year as a result of excessive booking fees and incremental revenues. The data in the report suggest that these amounts may total more than a billion dollars a year.

(6) United's and American's CRSs Are Highly Profitable. The DOT report found that United and American are receiving a 60-100% return on investment using conventional accounting methodology. If economic methods of measuring rate of return are used, United and American's rate of return may be even higher.

Although the DOT report is an excellent analysis of complex data and includes many useful findings of facts, it is regrettable that the report stops short of reaching conclusions on the ultimate issues involved. The report does not reach conclusions on how much revenue is being transferred to American and United from the rest of the industry; on what effects these revenue transfers have had and will have on airline competition; or whether the revenue transfers and other anti-competitive aspects of the CRS industry were an important cause of the wave of airline mergers, the disappearance of the new entrant carriers, and the lack of any recent new entry. Nor does the report reach any conclusions about whether various provisions in contracts between CRS owners and travel agents are unfair competitive practices which unreasonably restrain competition between CRS owners.

In addition, we are concerned that neither the DOT report nor subsequent statements by the Department give any indication as to whether the Department feels that any regulatory or legislative action is needed to deal with the problems disclosed in the report.

To deal with these problems, the Aviation Subcommittee will be holding hearings on September 14 on the DOT report and on the need for further action by the government. We believe that the Department of Justice could make an important contribution to these hearings and we would welcome your testimony. To ensure that the hearings focus on the issues of particular concern to the Committee, we are asking the witnesses to prepare written answers to a series of questions, with the answers to be submitted to the Committee one week before the hearing. The questions to which we would like you to respond are enclosed as are the questions we have submitted to the Department of Transportation. The hearing will consider your written responses and we would, of course, welcome any additional comments you would care to make in written and oral testimony submitted in accordance with the Committee's normal procedure.

To arrange for your testimony, please contact the Committee's Aviation staff at 225-9161. Thank you for your cooperation.

Sincerely,

Norman Y. Mineta

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

QUESTIONS FOR DEPARTMENT OF TRANSPORTATION

1. Please furnish the Committee with DOT's best estimate of the net revenue transfer to American Airlines and United Airlines from the rest of the industry based upon DOT's May 1988 CRS report.

   a) For the period prior to November 1984.

   b) For the period subsequent to November 1984 through December 31, 1987.

2. Do you believe that revenue transfers of this magnitude would have any effect on airline competition?

   -- on scheduling

   -- on fares

   -- on equipment decisions

   -- on decisions on cities and markets to be served

3. Given the magnitude of those revenue transfers, what role do you believe that CRS ownership played in the post-CAB sunset wave of airline mergers?

4. The early years of deregulation were characterized by many new competitors, some of which grew quite dramatically. In recent years, however, there has been little new entry, and most of the existing new entrants have ceased to exist. Do you have any opinion of the effect, if any, of the market power of the CRS vendors on new entry into air transportation and on the ability of new entrants to survive?

5. It appears from the data in the DOT report (see especially Tables 4.2 and 4.12) that the dominance of the two largest CRS vendors is generating a revenue transfer from other airlines of $1-2 billion per year ($1 billion if the vendors' estimate of "halo" is correct, $2 billion if the Department's estimate of "halo" is correct). Is it the position of the Department that transfers of that order of magnitude have no adverse impact on airline competition? Why did the report fail to aggregrate the various calculations that it made into a single estimate of the revenue transfer? Why did it fail to appraise the significance of those transfers for airline competition and the public interest?

6. Various airlines, travel agent groups, and others have made in recent months suggestions to DOT with respect to regulatory actions which they believe should be taken to reduce the dominant vendors' market power. Would you please list for us without necessarily identifying the source, what specific suggestions were made for DOT consideration. Did your Department consider each of these proposals? May we have DOT's evaluation of the proposals made to it? Were there any other proposals internally developed which were considered? If so, what was DOT's evaluation of each of those?

7. If Congress directed you to take action to dissipate the market power of the dominant CRS vendors, which proposal or proposals, if any, would you regard as most effective and appropriate for adoption by DOT?

8. What is your position on whether minimum use clauses directly or indirectly preclude a subscriber from obtaining or using a second system?

If you believe that it does have such an effect, do you think that DOT should take action to clarify that Section 255.6(b) of DOT's regulations precludes the use of minimum use clauses?

9. Has DOT addressed the question of what effect, if any, inhibition of conversion efforts resulting from restrictive contractual provisions has had on CRS competition or airline competition? If so, what conclusions have you reached?

On page 135 of the May 1988 CRS report, DOT suggests but does not resolve certain pertinent questions relative to whether the new restrictive subscriber contract clauses are unfair competitive practices and what the effect on air transportation competition might be if they were barred. For example, the Department states, "The question here is whether the benefits of these contracts (or particular provisions) are outweighed by a purpose or effect that unreasonably

restrains competition." Obviously that is the question; what is the answer? The Department has the statutory responsibility to prevent "unfair methods of competition in air transportation or the sale thereof" (Section 411 of the Federal Aviation Act). Having raised the appropriate questions about CRS contracts, does the Department take the position it has no obligation to provide the answers? If not, what is the Department's position on whether these contracts contain elements which unreasonably restrain competition?

10. In general, the DOT report contains a wealth of important information about CRSs and their impact on airline competition. Among the major points which emerge from the report are:

- The dominant CRS vendors have and exercise significant monopoly pricing power, reflected in the fact that they charge other airlines at least double what it costs to provide the service.
- The dominant CRS vendors enjoy extraordinarily high profits from their CRS operations (Internal Rates of Return estimated by DOT at 108.9% and 129.5% for Apollo and Sabre respectively), producing revenue transfers among airlines of $1-2 billion per year.

- Other airlines may be barred from making their own competitive responses (i.e. successfully marketing their own CRSs), and travel agents may be barred from freely choosing among CRSs, by a variety of agent-vendor contract clauses which may have an anti-competitive effect or purpose.

Obviously, these points raise major concerns about trends in the degree of competition among airlines, concerns which affect the interests of consumers, airlines, travel agents, and which ultimately threaten the viability of deregulation. Yet the Department, despite the wealth of information in its report, has chosen to draw no conclusions and has thus far chosen to take no action. Is that because the Department has concluded that no action is warranted; or does the Department have a plan of action and; if so, what is it?

11. In the last year, has DOT had any discussions with the Office of Management and Budget on rulemaking to deal with CRS problems? If so, what are OMB's views on the desirability of such rulemaking?

QUESTIONS FOR DEPARTMENT OF JUSTICE

(1) As I read the DOJ's 1985 "Report to the Congress on the Airline Computer Reservation System Industry," it appears to conclude that institution of government remedial action would then have been premature (a) because of the possibility of new entry creating CRS competitions for carrier participants and thus reducing the dominant vendors' market power; (b) the uncertainty of the duration of supra competitive access prices; and (c) DOJ's inability to quantify the amount of supra competitive access prices. The Department also expressed serious reservations with respect to divestiture as a remedy. Leaving aside the discussion of divestiture as an available remedy, the DOJ reconsidered its earlier views in light of DOT's 1988 study, and if it has, what conclusions has it reached?

(2) What advice would DOJ give the Congress as to possible legislation or directed administrative action to stem the flow of monopoly rents to the dominant CRS vendors?

U.S. Department of Justice

Office of Legislative and Intergovernmental Affairs

Office of the Assistant Attorney General

Washington, D.C. 20530

25 AUG 1988

Honorable Norman Y. Mineta
Chairman
Subcommittee on Aviation
Committee on Public Works
and Transportation
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

The Attorney General has received your letter of August 11, 1988, requesting the Department of Justice to testify at a hearing that the Aviation Subcommittee will hold on September 14, 1988, on the Department of Transportation's recent "Study on Airline Computer Reservation Systems" and further actions that may be needed to follow up on that study.

The Antitrust Division currently is reviewing this Department of Transportation study, but unfortunately will not be able to complete its review or formulate its views on what if any further actions would be appropriate prior to the Subcommittee's hearing. We will be glad to provide the Department's views on this matter to the Subcommittee as soon as our review is completed, and in any event will inform you of the status of this review on or before September 30, 1988.

Sincerely,

TM Boyd

Thomas M. Boyd
Acting Assistant Attorney General

U.S. Department of Justice

Office of Legislative Affairs

Office of the Assistant Attorney General
Washington, D.C. 20530

OCT 03 1988

Honorable Norman Y. Mineta
Chairman
Subcommittee on Aviation
Committee on Public Works
and Transportation
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This responds to your letter of August 11, 1988, asking whether the Department of Justice had reconsidered the views it expressed in the _1985 Report of the Department of Justice on the Airline Computer Reservation System Industry_ 1/ in light of the findings contained in the recent Department of Transportation (DOT) study of the CRS industy, _Study of Airline Computer Reservation Systems_, DOT P-37-88-2 (May, 1988). The DOT Study presented new evidence developed by DOT that further supports the conclusion that dominant CRS vendors have market power. The DOT Study also repeated concerns about certain clauses in travel agent subscriber contracts that tend to restrict the agents' ability to switch easily among vendors.

The Department of Justice has continually monitored competitive developments in the CRS industry since the 1970s, including conducting major civil investigations of the SABRE and Apollo CRS systems during 1982-1983. Those investigations revealed significant competitive concerns with certain practices by CRS vendors. For a number of legal and practical reasons, we concluded that industry-wide relief would be more swift, certain and comprehensive if we presented our evidence to the regulatory authority, the Civil Aeronautics Board (CAB),

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1/ U.S. Department of Justice, _1985 Report of the Department of Justice on the Airline Computer Reservation System Industry_, December 20, 1985.

which at the time was conducting its own CRS inquiry, rather than pursuing fragmented and time-consuming antitrust litigation against vendors in various federal district courts. The result of the CAB proceedings was the current CRS Rules, 14 C.F.R. 255, which have been successful in eliminating virtually all of the conduct that would have been the basis for any antitrust suit by this Department in 1983. Thus, we are persuaded that correcting competitive problems in the CRS industry through the regulatory process was the wise course.

The Department of Justice has continued to monitor the structure and performance of the CRS industry under the CRS Rules, reflected in part in its 1985 Report to Congress. We have also evaluated complaints from the industry, and the findings of other government agencies and observers of the industry. To date, however, the allegations and evidence we have examined, including the recent DOT Study, do not suggest probable violations of the antitrust laws that warrant a new investigation by this Department. 2/ Even if we were to launch a new Sherman Act investigation, we likely would conclude again, as we did in 1983, that competitive problems in the CRS industry are better addressed by the regulatory process rather than by seeking antitrust relief through one or more court orders. Moreover, antitrust enforcement in the CRS industry by this Department would duplicate efforts of the Department of Transportation, which possesses full regulatory authority to investigate and remedy competitive problems in the industry under Section 411 of the Federal Aviation Act, and currently has pending before it several CRS-related proceedings. Accordingly, we have thus far concluded that pursuing complaints about CRS through antitrust enforcement would not be a wise use of our resources. Rather, any government intervention into competition in the CRS industry is best left to the regulatory process at this time.

At this stage, however, even additional regulatory action should be approached with caution. While some fine-tuning of the CRS Rules is always an option, and there are currently some allegations of vendor conduct that could constitute violations of existing rules, additional regulatory action unfortunately could focus on whether to embark on rate regulation of booking fees or whether to order CRS divestiture. The Department of Justice continues to believe that neither of these extreme remedies is justified by current evidence or allegations.

2/ We mean to express no view on the merits of any private antitrust litigation in this area.

The new evidence from the DOT Study that supports the inference of supracompetitive pricing by CRS vendors is twofold: (1) an apparent wide disparity between airline booking fees and the average unit cost of providing the service, and (2) the persistence of substantial incremental revenues, now attributed to "halo effect," despite the CRS Rules prohibiting overt display bias.

Booking Fees and Incremental Revenues

While one could quibble with the DOT Study's methodology and estimates of accounting costs and rates of return for CRS vendors (particularly its allocation of joint costs and its implicit assumption that accounting rates of return that would be large for a mature and relatively riskless industry are equally excessive in a newer and higher risk industry such as CRS), the evidence presented by DOT does appear to show that booking fees substantially exceed unit costs, and thus provides some evidence that supracompetitive booking fees exist in the CRS industry.

As the Subcommittee is aware, however, the antitrust laws do not make it illegal for firms to possess market power, and the antitrust laws do not prevent firms that possess market power from charging prices consistent with that market power. Section 2 of the Sherman Act requires not only a showing of market power, but of conduct constituting "monopolization", that is, willful conduct to acquire or maintain that power. This latter showing is generally referred to as the "bad acts" requirement. The Department of Justice began its CRS antitrust investigations in the early 1980s based not only on allegations of market power, but also on allegations of conduct that could constitute the "bad acts" of monopolization, such as overt display bias, display tampering, discriminatory pricing based on competitive factors, withholding of flight information from rivals, and similar conduct. Essentially, the conduct that would have constituted evidence of a Section 2 monopolization violation has been addressed and eliminated by the CRS Rules. What remains is the allegation that market power still exists, and is being exercised by charging supracompetitive (but non-discriminatory) booking fees. By itself, such evidence would not justify the initiation of an antitrust investigation or enforcement action.

The DOT Study also shows that vendors continue to earn "incremental revenues" from the use of their systems. This conclusion is based on DOT's finding of a consistent and substantial pattern of CRS vendors receiving a percentage of airline revenues in excess of their percentage of the capacity in various markets in which they have CRS dominance. It is further supported by DOT's review of the vendors' internal documents, which show that, except for American, incremental revenues have not dropped significantly under the CRS Rules. 3/ This is the same pattern of vendors receiving incremental revenues that was found to exist by the CAB when it imposed the CRS Rules in 1984, although at the time the pattern was thought to be predominantly a result of overt display bias. The continued existence of incremental revenues despite the prohibition against display bias (there is no substantial evidence that the anti-bias rules are being violated) adds further weight to the conclusion that CRS vendors possess and are benefitting from CRS market power. 4/

The persistence of incremental revenues through "halo effect" raises slightly different issues from those raised by supracompetitive booking fees. If incremental revenues are being earned through a purposeful manipulation of the structure or functions of a vendor's CRS system, Section 2 might be implicated, particularly if the manipulation targeted specific rivals. The concerns to date, however, recognize that any halo effect probably results primarily from more benign factors, such as the CRS vendors' supportive business relationship with their subscribers, including the payment of override commissions, or "last seat availability" on the vendor carrier, a fact of life in this industry for many years, including at the time the CRS Rules were imposed. 5/ If halo effects result

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3/ See DOT Study, Table 4.2. After dropping, American's incremental revenues are still the highest, but are now on a par with the other vendors, which experienced little or no drop. All vendors now place their incremental revenues in the 10-15 percent range.

4/ This finding is tempered somewhat by DOT's observation that its incremental revenue estimates are gross rather than net calculations for each vendor. That is, if in a given market SABRE gives American $100 in incremental revenue that otherwise would go to United, and gives United $75 in incremental revenue that otherwise would go to American, the net effect is $25 to American. As increasingly more carriers obtain ownership interests in CRSs, the net effect of CRS ownership is less clear, although the few remaining non-vendor carriers, and any new airlines, would continue to be at a competitive disadvantage in many markets.

5/ Last seat availability and enhancements that make booking the vendor's flights more attractive to travel agents is an issue that was addressed by the CAB, and the Rules currently provide that the vendor may make enhancements available for its

Footnote Continued

from these factors, the Sherman Act implications are insubstantial.

If incremental revenues have persisted without manipulation of a system, then the CRS Rules did not completely sever the mutually reinforcing relationship between airline share and CRS share in local markets. At the time the CRS Rules were imposed, it was thought that incremental revenue flowed overwhelmingly from display bias, and that eliminating display bias would eliminate incremental revenues. Eliminating incremental revenues was thought crucial because they constituted (1) a barrier to CRS entry for a CRS that did not possess a substantial airline share, and (2) a barrier to entry for airline rivals in markets dominated by another carrier's CRS. If the DOT Study's evidence of incremental revenue from halo effect is accurate, then the anti-bias rules have had only marginal impact, and the prospects for entry into CRS and airline markets by new rivals may not have improved very much. This last point is somewhat undercut, however, by the emergence of stronger CRS competitors of SABRE and Apollo.

In sum, the existence of supracompetitive booking fees and latent incremental revenues raises legitimate competitive concerns, but does not constitute substantial reason to believe

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5/ Continued

own airline that are not made available to other carriers. Once an enhancement is made available to another carrier, however, it must be made available on a non-discriminatory basis to all participating carriers. 14 C.F.R. § 255.7. There are no substantial allegations that vendors are violating this rule by discriminating among participating carriers.

Some have suggested that, under current technology, last seat availability can easily be made accessible to all participating carriers. Whether this is the case is an issue currently before DOT in the petition filed by Texas Air that alleges, among other things, an "architectural bias" in the system designs of the major vendors. See DOT Dockets 45758 and 45759. The current Rules are ambiguous on whether a vendor may make last seat availability or other enhancements more convenient on its own airline than for all other carriers. The pending proceeding may clarify this issue. In evaluating the issue, DOT should carefully consider whether last seat availability can be made accessible to all carriers without risking the costs and inefficiencies that often accompany government mandates of product design and development.

that the Sherman Act is being violated. It should be borne in mind by the Subcommittee, however, that the provision of CRS is a major innovation that entailed significant risk and investment. The fact that the successful companies are now earning an above-normal rate of return may simply reflect the market's reward for legitimate commercial success. Moreover, the only solution for supracompetitive pricing may be full-scale price regulation, a remedy that has proven to be costly and inefficient in practice. The Department of Justice reiterates its serious concerns with price regulation and its observations on an alternative, the zero-price option, that it stated in its 1985 Report to Congress and in its various filings with the Civil Aeronautics Board in 1983 and 1984. Governmental regulation must be even more cautious in dealing with the halo effect. To the extent the halo effect results from override commissions, no relief is needed, since all carriers can compete on this basis. To the extent it results from last seat availability or other technical features of the systems, there is a temptation for the government to try to mandate product design. Regulation of product design and development is something the government is least qualified to do, and is likely to cause more harm than good.

Vendor-Subscriber Contracts

There is also concern over the effects of restrictive clauses in vendor-subscriber contracts. The most controversial clauses in these contracts are the roll-over provisions, the liquidated damage clauses, and the minimum-use clauses. The concern is that these contract provisions make it more difficult for travel agent subscribers to switch between vendors or to subscribe to more than one CRS.

"Roll-over" refers to the practice of re-extending the 5-year contract period whenever the travel agent subscriber purchases additional equipment or services from the vendor during the contract period. Since the addition of terminals and other equipment and service is a common occurrence, the practice results in virtually perpetual contracts of 5-year duration. We understand that this practice, through the efforts of DOT, has been eliminated voluntarily by the vendors.

Liquidated damage clauses assess damages against travel agents who breach their contracts that are based on the expected revenue that the subscribers' use of the system would generate for the vendor. Minimum use clauses are clauses that specify that a travel agent subscriber must use the system for a minimum number or percentage of bookings. The purpose of the minimum-use clause is, according to the vendors, to assure the vendor that booking fees from airlines will be generated. Both clauses are currently in use and the subject of petitions at

DOT. See, e.g., Petition of the American Society of Travel Agents, Inc., Docket 45711, filed July 19, 1988.

Both the liquidated damage and minimum use clauses allow vendors to charge travel agents less for CRS services. The elimination of such clauses therefore could have the effect of increasing fees charged to travel agent subscribers. This is because there would be an increase in the risk a vendor faces when signing up a new subscriber, since the vendor would not be guaranteed the expected revenue to be generated by the agent's use of the system.

The net effect of liquidated damage clauses on competition is ambiguous. On the one hand, they inhibit rapid switching by agents that become dissatisfied with their current CRS, while at the same time they make it easier for a rival vendor to make its system available to the agent at a lower cost to that agent. 6/ Similarly, it is unclear whether a regulatory rule that prohibited liquidated damage clauses would have a significant adverse effect on competition. Eliminating these clauses would simply mean that subscribers may pay more of the upfront costs of installing and using a system in their offices. Based on these considerations, the Department of Justice has determined that the existence of liquidated damage clauses does not justify an antitrust investigation or enforcement action.

A different problem is created by minimum use clauses. Minimum use clauses have the potential, unlike liquidated damage clauses, to prevent travel agents from subscribing to more than one CRS. If an agent is forced to choose among systems, and can only subscribe economically to one system because one or both vendors require minimum use provisions, the agent may be more likely to choose the system of the dominant air carrier in its locale, and competition from a second CRS is inhibited. In this way, the minimum use provisions are the equivalent of the exclusive use contract practices found by the CAB in 1984, and could quite possibly run afoul of the CRS rule that prohibits a vendor from "directly or indirectly" prohibiting a subscriber from obtaining or using any other system. 14 C.F.R. § 255.6(b). Whether the rule is violated depends on whether, under the specific facts at issue, the minimum use clauses are so onerous that they prevent an agent

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6/ The liquidated damage clauses have no effect if the agent switches at the end of the 5-year term. The damages generally are highest shortly after the agent has signed the contract, and decrease steadily to zero at the end of the 5-year term.

from using multiple systems. An action that could resolve this issue has been instituted at DOT by Northwest Airlines. See Docket 45641.

Industry Developments Since 1985

Finally, I would like to draw the Subcommittee's attention to some positive developments in the CRS industry that have occurred since the 1985 Department of Justice Report to Congress. Although the NIBS project has failed, many of the major carriers behind NIBS have purchased equity interests in existing CRSs. USAir and Piedmont have become partners in Apollo. Northwest has become a partner in TWA's PARS system and Texas Air and its affiliated carriers have acquired Eastern's System One CRS. In addition, significant non-vendor airlines have merged with vendor airlines since the imposition of the CRS rules, notably Western with Delta, Ozark with TWA and Republic with Northwest. These developments should have the effect of making some of the smaller CRSs more attractive to agents in numerous markets, although they could also heighten concern that the few remaining non-vendor carriers will continue to be at a cost disadvantage when entering markets dominated by one of an increasing number of vendor airlines.

To summarize, the Department of Justice has concluded that there is not sufficient cause for it to undertake a further antitrust investigation of the CRS industry at this time. While the merits of particular further regulatory action by DOT are uncertain, we believe that that agency continues to be the appropriate forum for consideration of the unresolved competitive questions.

I hope this information will be useful to the Subcommittee. Please contact us if we can be of any further assistance.

Sincerely,

Tom Boyd

Thomas M. Boyd
Acting Assistant Attorney General

cc: Honorable Newt Gingrich

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Committee on Public Works and Transportation
One Hundredth Congress
U.S. House of Representatives
Room 2165, Rayburn House Office Building
Washington, DC 20515
TELEPHONE: AREA CODE 202, 225-4472

September 23, 1988

Honorable James Burnley IV
Secretary of Transportation
Washington, D.C. 20590

Dear Jim:

We are writing to urge the Department to take prompt action to deal with the problems identified in the Department's May 18 study on Airline Computer Reservation Systems (CRS).

As you know, the Aviation Subcommittee has long been concerned with the domination of the CRS industry by American and United, who own the CRSs used by travel agents accounting for about 75% of all revenues booked through a CRS.

American and United's domination of the CRS business creates substantial competitive advantages for these carriers in the sale of air transportation. American and United's dominant CRS position gives them the power to charge booking fees well in excess of American and United's costs. These fees, in turn, are an added cost for other airlines which want to compete with American and United.

This domination of the CRS industry also gives these two carriers substantial additional revenues because of the tendency of travel agents to sell more tickets on the airline owning the CRS they use. These incremental revenues enable American and United to gain an additional 10% or more in traffic beyond what they would get if agents' bookings were completely neutral. Incremental revenues make it extremely difficult for other airlines, particularly those that do not have a CRS system, to compete with American and United.

Moreover, American and United have imposed restrictive provisions in their contracts with travel agents, including high liquidated damages and provisions requiring minimum use of a CRS. These contractual provisions make it extremely difficult for a competing CRS system to displace American or United no matter how good their computer reservation system is.

The CRS situation is widely considered to have been an important factor in the recent wave of airline mergers, in the disappearance of new entrants from the industry, and in the absence of new entry since 1985. In the last few years, many airlines and observers of the industry have concluded that there is no future for an airline which is too small to own a CRS system. We suspect that banks and investors have reached the same conclusion, leaving them reluctant to back new entrant carriers.

The decline in airline industry competition is reflected in overall industry concentration data. A Congressional Budget Office report shows that between 1983 and 1987 the market share of the top four carriers increased from 54 to 66%; the market share of the top eight carriers increased from 74 to 91%; and the market share of the top 12 carriers increased from 84 to 97%.

We are deeply concerned that the increase in industry concentration will reduce competition to a point where we will lose the low fares and improved service made possible by airline deregulation. If this occurs, we will be faced with the difficult problem of developing legislation which will protect the public against unreasonable fares without destroying all the benefits of competition and deregulation. It would be far better to take action to enhance competition and prevent monopoly power from developing in the first place. CRS presents an important opportunity for this type of action.

In 1986, in response to a formal written request from Members of our Committee and Senator Kassebaum, the Department agreed to undertake a general study of the CRS concentration problem, a first step in dealing with the basic issues. The DOT study was released in May 1988. The study exhaustively analyzed data on the CRS industry and reached conclusions which, in the view of many observers, substantiated the concerns that have been raised about CRS monopoly power. Some of the main conclusions reached by the DOT study were:

First, that American and United continued to dominate the CRS industry, with their CRSs together accounting for approximately 75% of the revenues handled by automated travel agents;

Second, that there are substantial barriers to new entry into the CRS business;

Third, that the booking fees which United and American are charging other airlines for each ticket written on a CRS are approximately twice United and American's average cost for providing this service;

Fourth, that American and United CRS ownership continues to give them substantial incremental revenues, that is excess revenues resulting from the tendency of travel agents to book on the airline owning their CRS.

Fifth, the high booking fees and the incremental revenue transfers produce revenues of hundreds of millions of dollars a year for American and United; and

Sixth, as a result of these revenue transfers and other sources of CRS revenues, American and United CRSs are earning rates of return of 60-100% a year.

Given the disturbing nature of DOT's findings, we would have expected that when the report was issued, there would have been a prompt announcement of follow-up action by DOT. Regrettably, there was no such announcement, either at the time the report was issued or in the following months.

To obtain an independent viewpoint, we asked the General Accounting Office to consider the DOT report and related questions. GAO, after reviewing your report, found that:

> " -- airline-owned CRSs earn profits exceeding those that could reasonably be expected to be earned in a competitive market and
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> -- these profits reduce competition in the air passenger market, because they artificially raise the costs of participating carriers."
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> GAO concluded that:
>
> "We believe in view of DOT's empirical results, and in view of the analyses conducted over the past 5 years by the CAB, the Justice Department, and GAO, that further action is now warranted to ensure that the benefits of airline deregulation are not nullified by the anticompetitive effects of airline ownership of CRSs.
>
> "DOT has the statutory authority to prevent unfair or anticompetitive practices in air transportation, which might result in unreasonable market domination, monopoly power, and other conditions that would tend to allow one or more air carriers to increase prices or exclude competition. We believe that the Department's findings warrant DOT's taking additional action to remedy these anticompetitive problems."

Unfortunately, at the Aviation Subcommittee hearings on September 14, DOT testified that the Department does not intend to take action on its own and is only willing to consider CRS problems when it reviews pending petitions for rulemaking and enforcement complaints.

The Department is only committing to do what it is obligated to do by law, that is to review petitions which are filed with the Department. DOT has made no commitment that its review will lead to any positive action, not even preliminary action such as a Notice of

Proposed Rulemaking. At our hearing, DOT was not even willing to commit that it would complete its review of the pending petitions on a timely basis. When asked whether DOT had a target date for completing their review, the answer was that there were no target dates.

We are not persuaded by the reasons given by the Department for not taking independent action to deal with the CRS monopoly power problem. In both its answers to our written questions and its testimony, the Department tried to undercut the obvious conclusions to be drawn from its report by a one-sided presentation speculating that in the future there might be more CRS competition; that airlines without CRSs might be able to compete successfully with CRS owners; that further refinements of the data studied by DOT might lead to different conclusions; that some of the remedies which have been proposed might create new problems, etc.

At our hearing, we asked GAO whether the considerations raised in DOT's presentation outweighed the findings of the DOT report and the earlier reports by GAO and the Department of Justice. GAO's answer was that the matters raised in DOT's testimony did not change GAO's conclusion that there was a clear need for DOT action.

We agree, and also urge you to bear in mind that there are high costs from continued inaction. Unless DOT takes steps to enhance competition in the airline industry, we may well be faced with demands to reregulate airline fares and service, threatening the benefits of deregulation.

We strongly urge you to go forward promptly with regulatory action to deal with CRS problems. To facilitate our oversight of your actions, we would like to receive a monthly report, beginning November 1, detailing all pending DOT proceedings (including pending petitions for rulemaking and enforcement) dealing with CRS issues, the procedural steps which have been completed in each proceeding, the target dates for remaining procedural steps, and a statement of the work which has been completed since the last monthly report.

Thank you for your cooperation.

Sincerely,

Glenn M. Anderson

John Paul

JOHN PAUL HAMMERSCHMIDT
Ranking Republican Member

GLENN M. ANDERSON
Chairman

NEWT GINGRICH
Ranking Republican Member
Subcommittee on Aviation

NORMAN Y. MINETA
Chairman
Subcommittee on Aviation

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

October 25, 1988

The Honorable Norman Y. Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works
  and Transportation
House of Representatives
Washington, D. C. 20515

Dear Norm:

Thank you for your letter, co-signed by Congressmen Hammerschmidt, Anderson and Gingrich, concerning airline computer reservations systems. In your letter, you have reiterated your view that Department action is needed in the regulation of such systems in order to stem their potential anticompetitive effects.

In order to aid in your oversight of our actions in this area, you have asked for monthly reports on the status of the various enforcement complaints and petitions for rulemaking on this subject now pending before the Department. In the reports, you ask us to include a description of where in the administrative process each complaint or petition now stands, what steps remain before the Department's resolution of each proceeding, and what work has been completed during the previous month. You asked that we provide you our first report on November 1.

We will be glad to provide you with this information. At this point members of my staff are preparing pertinent briefing materials which I anticipate receiving in the next 30 days. Since it is unlikely that I will have an opportunity to review those materials before November 1, we will have nothing to report on that date, but we will send you our first report by December 1. We hope this meets with your approval.

We have also sent copies of this letter to those Congressmen who co-signed your inquiry.

With best wishes,

Sincerely,

Jim Burnley